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AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

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INSIDE DOPE

Learn to live and laugh— Thus delay your epitaph

By GEORGE F. TAUBENECK

Stories of the Week
Additional Random Anecdotes
Fast Quips
Gags of the Week
Political Wisdom
Verse of the Week

Stories of the Week

Little boy unearthed a coffee can in a vacant lot. Brought it home to his mother.

Indignantly she removed five thousand-dollar bills, and *slapped* him.

"Where's the coffee?" she raged.

From the gallery Puerto Rico fanatics pumped bullets into the House of Representatives, wounding five Congressmen.

In a trice the assassins were overpowered and the shooting stopped. Speaker of the House Joe Martin emerged from underneath his desk; uttered a masterfully contained sentence:

"The House is recessed."

Two mighty Teutonic warriors were captured by Caesar's legions, and brought back triumphantly to Rome.

In the Colosseum they were pitted against (in succession) 27 gladiators, 19 tigers, and *all* the caged lions.

Stubbornly and efficiently the German warriors dispatched everything that was thrown at them.

Great crowd pleasers, these Teutons.

The current Caesar (Caligula) then ordered 500 elephants (which were procured from Africa) for the next match against these mighty gladiators.

Awaiting these stampeding pachyderms, Carl and Gus Teuton discussed their off-hours recreation.

"Believe it or not," boasted Carl, "Caesar's wife came to my tent last night, and . . ."

"Tell me about it later," interrupted Gus. "Here comes a bunch of silly elephants."

"It hurts me to remember my girlhood days," tatted an Old Maid.

"So? What happened then?"

"Nothing!"

There was a bit of the Pixie in concert pianist Vladimir de Pachman. On a certain occasion he found the on-stage piano bench too low for comfort, so he called for a telephone directory.

Out it came; he placed it on the bench, and sat on it. Shaking his flowing locks he arose, tore out *one page,* sat down again, beamed happily at the audience, and commenced a Beethoven Sonata.

Additional Random Anecdotes

Five American tourists glimpsed the crater of Vesuvius and its perpetual fires.

"It's Hell incarnate!" gasped Joe Blow from Big Bend.

Whispered Joe's curly-haired Italian guide tc his *inamorata:*

"What can you show these Americans? They've seen everything."

Back in Tennessee, land of child brides, two mountaineers exchanged customary greetings.

"Howdy, you-all. How are you-all's folks?"

"Tolerable, 'cepting my wife. She's teething, and it's bothering her something awful."

(Concluded on Page 10, Col. 5)

Next Year for Sure?

Senate Votes Appliance Tax Cut, But Chances 'This Year' Are Called Slim

WASHINGTON, D. C. — The Senate on March 24 voted to reduce the 10% excise tax on electric, gas, and oil appliances to 5%.

However, this amendment to the Senate's excise tax bill was approved only after Sen. Eugene D. Milliken, Colorado Republican and chairman of the Senate finance committee, said he would "take the amendment to conference" when Senate and House officials get together to iron out the differences in their two excise tax bills.

This is interpreted to mean that the amendment is expendable and may be dropped from the final bill. Chances of it passing were said to be remote as House members were firm in not cutting excises below 10%.

Whether or not the amendment is written into law, the Senate finance committee promised to try and reduce the appliance excise tax "as soon as the state of the budget will permit."

The committee, when reporting out the excise tax bill, which at that time did not contain the appliance cut amendment, said: "Your committee would have liked to have made reductions in excise tax rates which were at or below the 10% level. This was not possible because of the present state of the budget.

"Many of the excise taxes now in effect were imposed during World War II or at the outbreak of the Korean war and need to be

(Concluded on Page 4, Col. 3)

Write Now!

By the time you read this, fate of the proposed cut in appliance excises will probably have been decided. However, the present turn of events gives the reader interested in eliminating the excise tax an excellent opportunity to write to his Congressman or Senator. He can ask how the Senator voted on this issue and strongly urge the necessity of removing the tax as soon as possible. While your Congressman has this problem on his mind, is the best time to let him know how you feel.

ponsible madequate m Conditioner

HOMA CITY — A local ruled recently that in order protect himself against loss, a ealer installing a packaged air conditioner must make sure that electrical service is adequate to insure proper operation of the unit.

The decision was made in a case involving Hales-Mullaly, Inc., Oklahoma City dealer, and Cannon's, who purchased a $350 room air conditioner from the dealer. Cannon's paid $100 down, with the remainder to be paid over the next 60 days.

However, the installation allegedly did not provide sufficient cooling, and a complaint was filed with the dealer. The dealer responded by installing a second machine, and this, too, reportedly failed to provide the amount of

(Concluded on Page 4, Col. 5)

Household Unit Sales In 1953 Hit 3,570,000

Total Is Slightly Over '52; 9-Cu. Ft. Size Was Most Popular, with 11-Ft. Next

(See table on page 38)

DETROIT — World sales of household electric refrigerators by U. S. manufacturers in 1953 totaled 3,570,000 units, according to estimates made by AIR CONDITIONING & REFRIGERATION NEWS.

The 17 household refrigerator manufacturers reporting to the National Electrical Manufacturers Association sold 3,490,552 units during 1953.

This was just 2% more refrigerators than 16 NEMA reporting firms sold during 1952. Sales to the domestic market increased 1% over 1952, those to Canada declined 7%, and sales to other foreign countries jumped 22%.

Refrigerator sales during the month of December numbered 197,102 units, down 27% below December, 1952, but up 41% over November. Sales to Canada for the month dropped 89%—from 6,797 units to 765—from 1952, while sales to other foreign countries increased 11%.

In 1953, refrigerators of 9-cu. ft. capacity were the top selling size, supplanting the 8-cu. ft. size, the top seller in the previous three years. The 11-cu. ft. size was second in volume, followed by the 7-cu. ft. and 8-cu. ft. sizes.

Nash-Kelvinator Holders Approve Hudson Merger

DETROIT — Nash-Kelvinator Corp. stockholders meeting recently voted in favor of a proposal to merge with the Hudson Motor Car Co. A total of 3,277,754 of the outstanding shares were voted in favor of the merger and 238,115 shares were voted against the merger.

In accordance with the merger agreement, the merger could now become effective any time on or before April 23, dependent upon favorable action by the board of

(Concluded on Page 4, Col. 2)

'Tubular Plan' Features Burnham Conditioner

ZANESVILLE, Ohio—A "tubular plan" of construction is used on the window air conditioner line marketed by the air conditioning department of Burnham Corp. here, the company reported recently.

This means, the company said, that the housing is installed first without the chassis. Then the chassis slides into place and is ready for immediate operation. When servicing is required the

(Concluded on Page 4, Col. 4)

Marley Completes New Factory In Louisville

LOUISVILLE, Ky.—The Marley Co., Kansas City, Mo., has built a new plant here "to meet the sharply increased demand" for the company's "Aquatowers" — mechanical draft cooling towers for air conditioning and refrigeration service.

The new plant replaces Marley's former manufacturing facilities in Louisville.

(Concluded on Back Page, Col. 1)

Mitchell, Associates Acquire Frigikar Corp.

DALLAS—Bert J. Mitchell and a group of local associates have acquired Frigikar Corp. here and will continue to manufacture automobile air conditioning units for eight makes of automobiles, it was reported here recently.

Mitchell, who has become president of Frigikar, is said to have developed and installed one of the pioneer car air conditioning units four years prior to World War II. He has had considerable manufacturing experience in the automotive and other fields.

Mitchell said that Frigikar is currently producing about 50 units daily and will distribute them through authorized dealers, mainly automobile dealers. He said that

(Concluded on Page 4, Col. 2)

Use of 'Freon-13' Widens for Low Temp Processing, Testing

WILMINGTON, Del. — "Freon-13" monochlorotrifluoromethane, a nonflammable and nonexplosive refrigerant designed for systems producing temperatures in the range of -70° to -150° F., now is finding wider application in many types of metal treatment, chemical processing, and testing work, says the Du Pont Co.

Supplies of the refrigerant, which may simplify the design of equipment for low-temperature work and eliminate the use of flammable and explosive refrigerants, will be stocked at the company's warehouses at Carney's Point, N. J., and East Chicago, Ind. It will be available in 5, 9, 23, and 80-lb. cylinders.

Big advantage of "Freon-13" is its adaptability to use in compact, economical hermetic-type compres-

(Concluded on Page 35, Col. 1)

New Westinghouse Appliance Plant Begins Major Production

COLUMBUS, Ohio — The Westinghouse Electric Corp.'s new $45 million appliance plant here is already turning out 800 refrigerators a day, it was announced by John H. Ashbaugh, vice president, at the official opening of the plant here.

Ashbaugh said that production will be increased gradually as more of it is shifted from the Mansfield, Ohio plant, until eventually the new plant will be producing all Westinghouse refrigerators and freezers. Refrigerator production started here on a small scale on Nov. 12, 1953.

At present, the plant is operated by a small nucleus of 1,500 employes. Eventually, it will employ between 6,000 and 7,000 people and will be used entirely for the production of major appliances.

(Concluded on Back Page, Col. 3)

New Jordon Plant To Open In May; Add Package Conditioner to Line

PHILADELPHIA—Formal opening of the new Jordon Refrigerator Co. manufacturing plant at Rhawn St. and Tabor Rd. in the greater Northeast section of Philadelphia, has been set for Saturday, May 22, at 11 a.m., Frank Fogel, president, has announced.

The official opening of the sprawling 150,000-sq. ft. building, considered one of the country's largest and most modern plants for the exclusive manufacture of commercial and institutional refrigeration, upright home freezers, and combination refrigerator-freezers, will also mark the 10th anniversary of the company.

The opening ceremonies will include a ribbon cutting at the front entrance to the plant, and the unveiling of a bronze plaque in honor of the new plant and the first decade of the company's existence.

(Concluded on Page 19, Col. 1)

PHILADELPHIA—Five sizes of completely self-contained, floor type of store or institutional air conditioning units are being marketed by Jordon Refrigerator Co., E. A. "Terry" Terhune, vice president in charge of the commercial division, has announced.

Jordon has been marketing a line of room air conditioners.

All of the new Jordon conditioners are compact and occupy minimum space, Terhune states. The five sizes—2, 3, 5, 7½, or 10-ton units—are designed to fit virtually every size store.

The cooling section and blower section have front air return and air discharge grilles, the latter adjustable to direct air up or down or to either side.

The cabinets of the new store air conditioner units have a soft gray finish that cleans easily and

(Concluded on Page 19, Col. 4)

FTC To Open Hearings On Evis Matter April 8

SAN FRANCISCO—The Federal Trade Commission will open hearings here April 8 in the matter of its recently issued complaint covering certain claims made in the advertising of the Evis Mfg. Co. for its water conditioner.

It is reported that the company will file an answer to the complaint at the hearing.

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XUM

NRDGA May Draft Model Fair Trade Law with Teeth

NEW YORK CITY — The National Retail Dry Goods Association is considering drawing up a model fair trade law that would put enforcement in the hands of state officials rather than dealers and manufacturers, William B. Burston, manager of the merchandising division, announced recently.

At present, the association is reviewing the fair trade laws of the various states as a prelude to drawing up a model law. If and when a model law is drafted, local chapters of the organization will be asked to seek its adoption by their state legislatures.

Burston indicated that association members felt that present laws which provided only fines and left the enforcement to civil suits brought by injured dealers or manufacturers were not strong enough.

Some felt that the state should be the policing power and that jail sentences should be provided for repeated offenders.

PLENTY FOR FREE

For "easy-to-get" product information . . . use coupon on "What's New" page.

Universal Ups Output as Demand Rises Sharply

LIMA, Ohio—A sharp increase in demand for all Universal Major electrical home appliances has been noted during the past few weeks with the result that production in the three plants of Universal Major elec Appliances, Inc. has been materially increased, according to William B. Clayton, vice president and general sales manager.

The company is in full production on refrigerators, freezers, clothes dryers, and room air conditioners at its Lima plant and on electric ranges, sinks, and wringer washers at the Baltimore plant, he said.

The upsurge in business is also reflected in an exceptionally heavy demand for beverage coolers, while the manufacture of signs for large national accounts has also been increased. These are both made at the Lima plant.

The manufacture of "Mirawal" and "Miratile" at the Kernersville, N. C. plant is running at full capacity.

At present, the company has a backlog of approximately $3,000,000 in orders for immediate delivery. February sales were the highest since mid-1953.

The company is continuing to produce on government contracts at the Lima and Baltimore plants. Contracts were awarded in 1951.

New Albuquerque Chapter Of ASHVE Established

ALBUQUERQUE, N. M. — The Albuquerque chapter of the American Society of Heating and Ventilating Engineers was established at a meeting on March 15 at the Franciscan hotel here. Some 48 New Mexico engineers attended.

Hugh Munn of the Technical Service Co. was elected president, Jack James was named secretary, and Roger Haynes, treasurer.

The Albuquerque group will petition the national organization for a charter. When granted, it will become the 56th chapter in the organization throughout the country.

Of the 48 who established the chapter, 12 reside in Los Alamos. Guest speaker at the organizational meeting was Walter Glancey of Dallas, who spoke on steam coil performance.

Kelvinator Buffalo Zone Names 2 In Builder Sales

BUFFALO — Buffalo zone manager Roland H. Davison of the Nash-Kelvinator Sales Corp.'s Kelvinator Div. announced the appointment of Norton V. Maloney as sales promotion manager and Arthur J. Lenz as manager of the new apartment and builders' sales division. They have headquarters at the Kelvinator zone offices here.

Faust Will Discuss Unitary Systems Mar. 31 In N.Y.U. Lecture

BLOOMFIELD, N. J.—Frank H. Faust, manager of marketing research of the General Electric Air Conditioning Div., will lecture on unitary air conditioning systems in multi-story buildings during the first annual Mario C. Giannini Memorial Lectures at New York university's Div. of General Education on March 31.

Faust, one of eight lecturers in the series, will discuss the more popular unitary systems including self-contained window units and package units and will cover condensing methods and summer-winter control problems.

The theme of the 1954 NYU series is "Research Developments in Air Conditioning." The series is presented in cooperation with NYU's College of Engineering and the American Society of Heating and Ventilating Engineers, New York Chapter. Faust is president of the North Jersey Chapter of the Society.

'Vacation-ette' Coupons Lure Customers In 2 States

BLUEFIELD, W. Va.—A new version of the merchandise stamps that many stores offer their customers is being tried in Virginia and West Virginia.

Participating stores in these two states give their patrons "Vacation-ette" certificates with the merchandise they buy. These certificates are redeemable at local Vacation-ette, Inc. offices for vacation travel, either a package tour or an independent trip.

Irwin K. Huff, president of Vacation-ette, Inc., said that the certificates are backed by money in the First National Bank of Bluefield and the Bank of Virginia in Richmond. These two institutions are handling the financial arrangements in their respective states.

Participating stores display a Vacation-ette emblem.

Buensod-Stacey Opens Richmond Sales Office

NEW YORK CITY—A. C. Buensod, president of Buensod-Stacey, Inc., announced the opening of a new branch office at 601 Central National Bank building, Richmond, Va.

This new office, primarily a sales office, will be headed by R. D. Melton, an air conditioning and refrigeration engineer, to complement the construction staff.

Melton is a graduate of Virginia Polytechnic Institute with a B.S. degree in architectural engineering. He has had 15 years' service with Buensod-Stacey and the predecessor company which was taken over at Charlotte, N. C.

Carrier To Cool Calif. Bombproof Vault

SAN FRANCISCO — The contract for air conditioning the nation's second big atom-bombproof vault for private use was announced recently by Carrier Corp.

The vault is being constructed in an abandoned Southern Pacific Railroad tunnel at Zayante Creek in the Santa Cruz Mountain range in California. It is being built by Western States Atomic Vaults, Inc., and will be open for storage about May 1, 1954.

Carrier also provided the air conditioning system for Iron Mountain Vault Storage Co., first in the country, in an abandoned iron mine 200 ft. below the surface of a tree-covered hill at Linlithgo, N. Y.

The West Coast vault will be a mammoth safe deposit box for keeping vital business records, treasures of art, and micro-films safe from bomb destruction, decay, or disfigurement, according to John F. Kooistra, San Francisco branch manager for Carrier's Machinery and Systems Div.

He stated that the air conditioning equipment in the new vault provides cool, dry air which is required for eliminating harmful moisture. It will maintain a temperature of 65° F. and a relative humidity of 45%.

A Carrier central system Weathermaker will be used to maintain the precision conditions required.

The 241-ft. tunnel containing 51,000 cu. ft. of rentable vault space originally accommodated a narrow-gauge railway system. When Southern Pacific purchased the railroad in 1906 it was converted to the larger standard gauge and lined with concrete and brick.

Abandoned in 1925, the tunnel was purchased by the Western States Co. in 1952. It was divided into two floors with metal partitioning throughout. In addition to the air conditioning, a fire protection system has been provided consisting of 12 alarm stations with fog-producing apparatus capable of immediately extinguishing any fire. The owners estimate it would cost $1,000,000 to build a similar vault without an existing tunnel.

Rasmussen Made Partner In Dyer Distributing Co.

SALT LAKE CITY—Don Rasmussen of Brigham City has become a partner with Elvin R. Dyer from the Dyer Distributing Co.

The Dyer firm is Utah and Idaho distributor for air conditioning equipment.

Dyer has recently accepted the presidency of the Central States Mission for the Mormon church and Rasmussen will take over active managership while Dyer is acting as a missionary.

ANNOUNCING

BURNHAM AIR CONDITIONERS

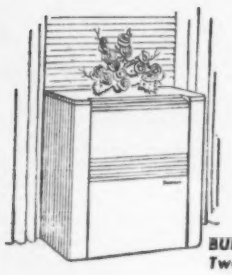
A BURNHAM Window Model

...a distinguished NEW addition to a distinguished line!

The quality, engineering and value that have been synonymous with the name BURNHAM in heating equipment since 1873, is faithfully reflected in this new line of room air conditioners. Check the special BURNHAM features listed on the left and note the painstaking regard for customer wants which has always been a BURNHAM characteristic. BURNHAM AIR CONDITIONERS are engineered by experts to give your customer carefree comfort — finger-tip automatic control and smooth, uninterrupted enjoyment. Mail the coupon below for full information on the BURNHAM line.

Note These Powerful Selling Features!

- Easily installed — no drains or water connections.
- Tubular-type cabinet construction.
- Drawer-type chassis.
- Filters and circulates air.
- Zephyr-Flo Grille — (Quiet, gentle breeze).
- Cools comfortably.
- Thermostatically controlled.
- Cabinet insulated — no sweating.
- Dehumidifies.
- Eliminates noise.
- "Chill Chaser" electric heater for Spring and Fall (optional).
- Positive ventilation and pressurized exhaust.



BURNHAM "WESTCHESTER" CONSOLE. Two powerful models — 1 and 1½ hp — easily take care of even tropical temperatures.

BUILT RIGHT AND PRICED RIGHT FOR *generous* PROFIT!

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ELECTRICAL APPLIANCE DEPT.
Zanesville, Ohio

Burnham Corporation AC-324
Electrical Appliance Dept.
Zanesville, Ohio

Please send me complete dealer information on BURNHAM AIR CONDITIONERS.

Name_____

Address_____

City_____ State_____

YOU CAN EARN "*KING SIZE PROFITS*"

SELL THIS NEW MODEL LC40 Lipman ICE TIP MACHINE

WANTED BY HOTELS, RESTAURANTS, FOUNTAINS, BARS

Here is the answer to all ice cubers... the Lipman Ice Tip Machine! Big capacity, safe storage, automatic control of size of ice tips... everything the trade has asked for! It sells fast... pays you extra profits.

TERRITORIES AVAILABLE!

WRITE TODAY!

LIPMAN REFRIGERATION
Division of YATES-AMERICAN

Gentlemen: I am interested in selling Lipman Ice Tip Machines. Please send information.

FIRM NAME_____

INDIVIDUAL_____

ADDRESS_____

CITY_____ STATE_____

Experiments Reveal . . .

Conditioned Greenhouses Can Double Plant Output At Slight Increase In Cost

HOUSTON, Texas — Air conditioning can double food production, so mankind need not fear mass starvation despite rapidly increasing birth rates and the loss of land to industrial sites.

At least that's the conviction of F. W. Went, professor of plant physiology at the California Institute of Technology.

He bases his belief on the results of research at the school's Earhart Plant Research Laboratory conducted in cooperation with the American Society of Heating and Ventilating Engineers, which he discussed at the society's annual meeting here.

Although greenhouses have been operating for centuries, the normal output is 40 to 50 tons of fruit per acre, he said. Production of Plant Protection, Ltd., Fernhurst, England, reached 80 to 90 tons per acre. Cost rose with the yield because of extra care required in all growing operations, such as pest and disease control, fertilizing, and watering.

Prof. Went calculates that air conditioning can double the amount of the highest production, and average yields of 160 tons to the acre can be expected without greatly increasing costs.

The secret is control of climatological factors through simple, but important, modifications to general practices of air conditioning. Prof. Went's experiments found that an air flow of 20 f.p.m. past the leaves of growing plants was determined as producing best growth.

Relative humidity, light intensity, influence of day and night temperatures, germinating and transplanting temperatures, and the planting temperatures, and amounts of recirculated and outdoor air were carefully studied.

Experiments with tomato plants resulted in establishing 80° F. as the best temperature for tomato seed germination. After two or three months, the temperature decrease is to 60° F. Common practice has been to transplant tomato seedlings when they are 4 to 8 in. high. Air conditioning can allow a growth of 3 ft. before transplanting.

Air conditioned greenhouses are essential for further investigation of plant behavior in relation to their environment. By such means, the effects of climate on all crops could be measured. This could extend improvements in growing conditions of many agricultural crops, not only those in greenhouses, but methods can be developed to indicate field conditions that can be modified to increase production, it was said.

Wheaton Named Head Of Eston Chemicals

LOS ANGELES — George S. Wheaton, assistant vice president of American Potash & Chemical Corp., has been named head of the company's Eston Chemicals Div., it was announced recently by Peter Colefax, president of American Potash & Chemical Corp. Eston products include refrigerants and industrial chemicals.

A graduate of Stanford university, Wheaton began his chemical career with Hercules Powder Co. in San Francisco, following which he played a major role in the development of the Eston Chemicals business which became a division of American Potash & Chemical Corp. in July, 1952.

Bailey Co. Organized In N.C.

KINSTON, N. C. — Capitalized at $100,000, W. E. Bailey Co. has just been organized here to conduct a general air conditioning, electrical, heating, and refrigeration business. Incorporators are Alma T. Bailey, William H. Gillikin, and Jack C. Holland, all of Kinston.

Loose Pack Popular

Demand for Larger Packages of Frozen Foods Voiced by Locker, Freezer Owners

WASHINGTON, D. C.—A trend toward merchandising frozen fruits and vegetables in bulk in response to locker and home freezer owner demand for larger size packages was noted in a recent survey of cooperative locker plants made by the Cooperative Research and Service Div. of the U. S. Department of Agriculture.

Larry Mann and Paul Wilkins of the USDA declared that last year 19 cooperative locker plants in Illinois handled 200 tons of bulk fruit, mostly from cooperative freezing plants in Michigan and Wisconsin. The locker plants sell the fruit to patrons either for home canning or for repackaging into smaller containers at the plant to go directly into their lockers.

Mann and Wilkins reported that one locker plant group in Canada has been doing a pioneering job in retailing commercially packed frozen food in bulk quantities. It buys this food in full truck or carload lots direct from packers.

Frozen vegetables and seafood are put up by the packer in institutional sized 2 and 5-lb. packages, which, in turn, are packed in 20 and 30-lb. fiber containers for shipment and for sale.

Most vegetables are frozen in loose form on belts through the blast freezer before packaging so the housewife can pour out what she needs and then place the balance in a moisture proof bag and put it back in her freezer, they said. These locker plants also fabricate and package meat and pack it into 30-lb. cartons, with beef, pork, and veal separate.

Mann and Wilkins said that the survey showed that while most of the frozen food sold by lockers in this country was in consumer size packages, many housewives are now asking for the larger size or institutional packages. Actually, they said, about 15% of the reported sales were in these larger packages.

Feb. Conditioner Sales Up 347% In Philadelphia

PHILADELPHIA—Philadelphia appliance distributors reporting to the Electrical Association of Philadelphia sold 4,700 room air conditioners during February, 347% more than they sold in the same month last year, the association reported recently.

Of the seven other appliances reported on, electric ranges were the only ones to exceed last year's sales. Range sales rose 2%.

On the other hand, February sales of water heaters were down 7%, clothes dryers 12%, dishwashers 10%, refrigerators 15%, television sets 29%, and home freezers 56%.

Comparative unit sales for distributors operating in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties are as follows:

Electric Appliance	Feb. 1954	Feb. 1953	Jan.-Feb. 1954	Jan.-Feb. 1953
Air Conditioners	4,700	1,050	6,461	1,690
Clothes Dryers	643	729	1,710	1,485
Dishwashers	369	408	775	665
Home Freezers	571	1,275	1,115	2,732
Ranges	1,287	1,253	3,008	2,445
Refrigerators	5,354	6,268	10,871	11,185
Water Heaters	579	618	1,192	1,482

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AIR CONDITIONING COMMERCIAL
For All Your Refrigeration and Air Conditioning Requirements
Curtis Refrigerating Machine Division
of Curtis Manufacturing Company R-528
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Established 1854

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Time is money! The 760 is engineered to save you time *three ways* . . . on hundreds of small installations when temperature counts.

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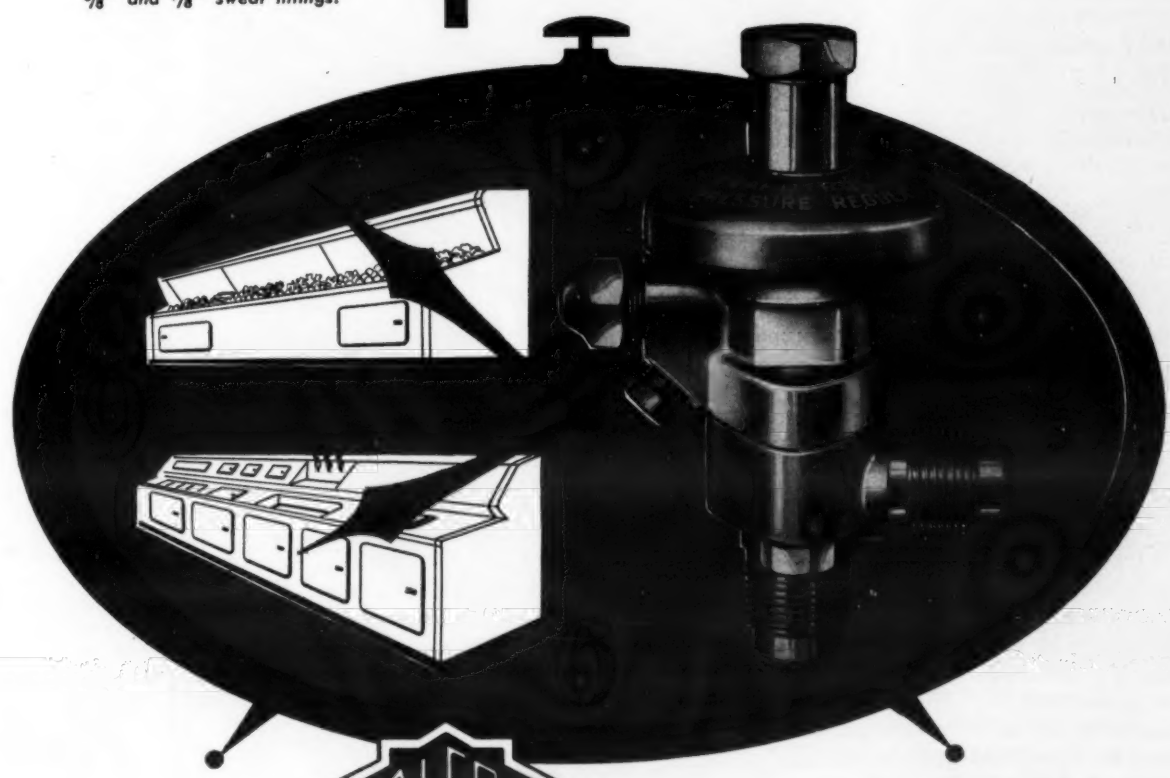
SAVES ADJUSTMENT TIME—To change pressure, merely remove seal cap and turn the screw. Gauge connection for accurate setting—prevents error.

SAVES SERVICE TIME—"Come-apart" construction permits easy cleaning or inspection without removing valve body from line.

SEE YOUR ALCO WHOLESALER

Available with 1/2" and 5/8" SAE fittings or 5/8" and 7/8" sweat fittings.



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Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.
5792

Central Queens Appointed N.Y. Airtemp Distributor

NEW YORK CITY — Appointment of Central Queens Electric Supply Corp. of Jamaica as its New York distributor for commercial air conditioners and residential cooling and heating equipment has been announced by Chrysler Airtemp.

With the new affiliation, the New York firm, one of the largest in the east, has organized a separate department to handle Airtemp products. Company officials have also revealed plans for enlarged promotional and merchandising programs specifically designed to assist builders in the growing Long Island building market.

Working with dealers and builders, Central Queens plans to formulate a program under F.H.A. whereby homeowners in their area can purchase air conditioning under long-term financing.

Harry Berken is president of Central Queens; William Berken is vice president; and George Weintraub, secretary.

Licenses Canadian Firm

ADRIAN, Mich.—H. W. Tuttle & Co., manufacturer of "Nykelkrom" heating elements for electrical appliances, has licensed Macdonald Metals & Plastics, Ltd., Waterloo, Quebec, to manufacture and distribute Nykelkrom products in Canada.

Frigikar Corp.--

(Concluded from Page 1, Col. 3)

the company's line has been expanded to include most car models from 1950 on and a dozen engineering improvements have been made in the unit.

He said all former engineering and manufacturing personnel under the direction of Barron Moody, Jr., production manager, is being retained.

It was reported that the company recently received an order for stocking the unit in various Packard Motor Car Co. zone parts depots for distribution to Packard outlets.

Frigikar Corp. was established six years ago as a manufacturing division of the Lone Star Olds-Cadillac Co. here.

Nash-Kelvinator--

(Concluded from Page 1, Col. 2)

directors of both companies.

The directors of either company have the right to abandon the agreement if the holders of more than 40,000 shares of Hudson who voted against the merger demand payment of the value of their shares in cash from American Motors before April 13.

The consent of affected banks and lending institutions and compliance with other conditions set forth in the agreement of merger also are necessary.

Excise Tax--

(Concluded from Page 1, Col. 3)

completely overhauled or eliminated. Among the taxes which are particularly troublesome and which will receive attention as soon as the state of the budget will permit are those relating to home appliances and the tax relating to transportation of property."

After the bill reached the floor of the Senate, Sen. Paul Douglas, Illinois Democrat, offered an amendment to repeal the excise tax on appliances entirely.

He said that he objected to the administration's "meat ax approach" to reducing excises that cut the tax on luxuries but do nothing about necessities and non-luxuries such as appliances.

He said eliminating the excise tax on appliances would save consumers about $25 on the purchase of a major appliance. He declared that the administration's tax program would "not cure a deepening recession."

Milliken opposed the amendment because he said it would cost the government more than $200 million a year extra on top of the $958 million that the Senate bill proposed.

Sen. Homer Capehart, Indiana Republican, suggested that the appliance tax be reduced to 5% rather than eliminated entirely. Douglas agreed. The Senate then voted in favor of the 5% reduction 64 to 23.

Burnham Window Air Conditioner.

Burnham Cooler--

(Concluded from Page 1, Col. 2)

chassis is easily removed without disturbing the housing.

The line consists of three models, the ⅓-hp. "Duchess," the ½-hp. "Princess," and the ¾-hp. "Queen of Comfort." They are styled in mist green housings of furniture steel with plastic grilles.

All units are thermostatically controlled and offer heating as an optional feature. Setting is by finger-tip control dials.

Burnham also markets a "Westchester" console model in two sizes —1 hp. and 1½ hp. It is housed in an imported mahogany cabinet.

Auto Industry Seeks Govt. O.K. on Transshipping Ban

WASHINGTON, D. C. — The automobile industry has asked the anti-trust division of the U. S. Department of Justice to grant anti-trust immunity to an agreement between manufacturers and distributors that would prohibit transshipping of goods from one market to another to be sold at cut prices, it was reported here recently.

The National Automobile Dealers Association has reportedly taken the lead in this request to clarify whether such an agreement might be considered by the Department to be restraint of trade or lessening of competition.

Cool-Ette Cuts Distributor Truck-Load Order Prices

DETROIT—Cool-ette, Inc. here, manufacturer of residential air conditioners, announces a 15% price reduction to distributors who purchase in truck-load quantities.

The company said the new price structure is made possible through increased production and is intended to implement Cool-ette's 1954 sales campaign.

"A franchised Cool-ette distributor or jobber in every major trading area" is the goal of this campaign, according to Emanuel Feinberg, president.

Styling improvements and increased cooling efficiency are claimed for the 1954 line which includes 10 models. Two and 3-hp., single and 3-phase models in both vertical and horizontal arrangements are offered.

Permanent cleanable metal filters are now standard. A low pressure cut-off switch has been added to the refrigerant control circuit for increased protection.

Complete details covering the Cool-ette horizontal "Space-Saver" units as well as the new "Koolbreze" add-on fan sections will be announced soon.

A low-cost cooling tower and pump combination is offered to Cool-ette distributors.

Inadequate Power--

(Concluded from Page 1, Col. 4)

cooling which was promised.

A month of experimentation went by, after which Cannon's sent a letter to the dealer, demanding that he remove the package conditioner and refund the down payment.

Hales-Mullaly refused to do this, and matters were at a standstill until the dealer sued to recover possession of the cooler. In retaliation, Cannon's set up a defense, claiming recovery of the amount already paid before surrendering the room cooler.

When the matter came to court, the judge decided in favor of the purchaser, pointing out that "unfitness of the cooling equipment was due to the insufficient electrical voltage in the building, in which the office was located, rather than a defect in the machine itself.

"This situation, although it is not attributable to the seller, did not relieve him of liability.

"It is the court's decision that it was incumbent upon the seller by whom the machine was installed, to ascertain before installation of the machine whether it would properly operate upon the electrical voltage furnished in the building.

"Evidence indicates that the seller did not do so and that the machine did not have sufficient power to do the job.

"The buyer purchased the machine in reliance upon the seller's assurance that it would work properly in his office. Therefore, the implied warranty was for that particular purpose.

"It is clear that the machine failed to function properly, and, therefore, the initial payment must be refunded to the purchaser."

New Store for Exeter

WILKES-BARRE, Pa.—AC Television has opened a new appliance store at 1130 Wyoming Ave.

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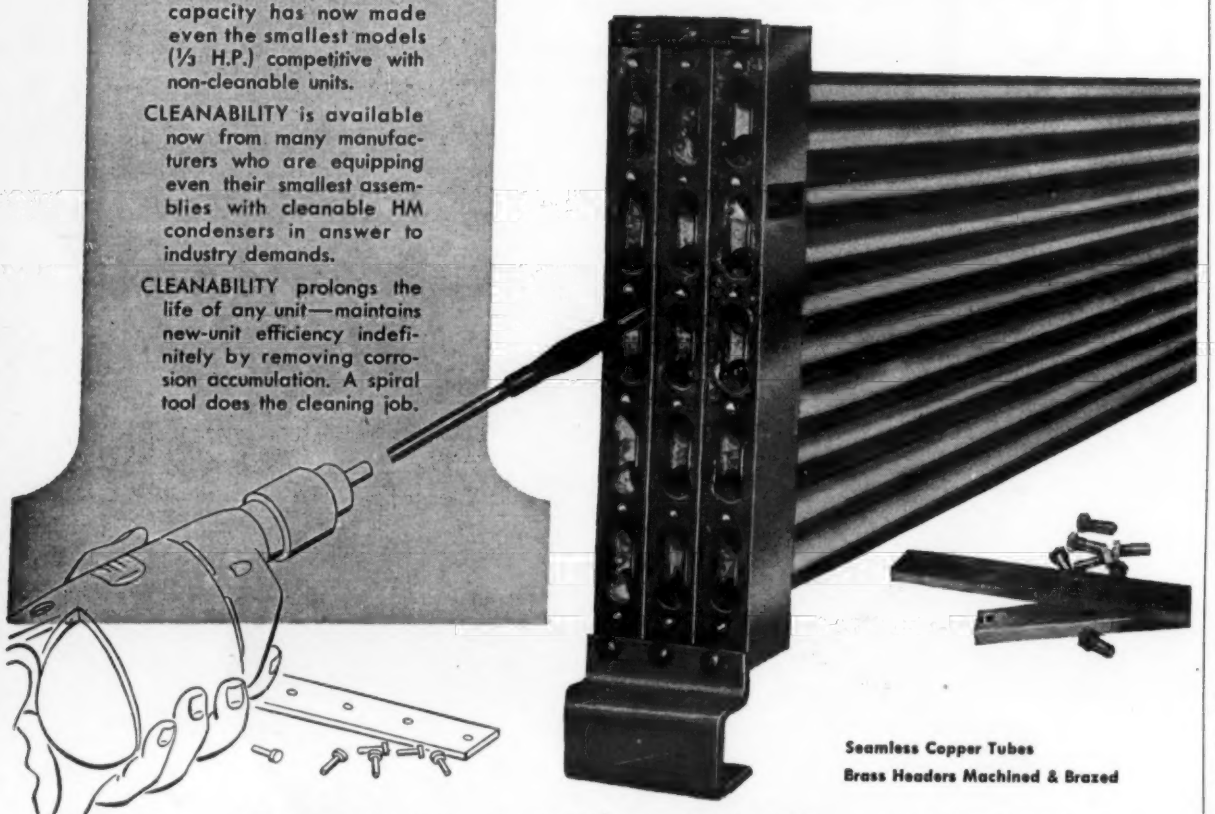

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Box 4538, Air Conditioning & Refrigeration News

Hotpoint Appliance Sales Up 26% In '53

CHICAGO—Major electric appliance sales by Hotpoint Co. during 1953 increased an average of 26% over 1952, John F. McDaniel, vice president, marketing, said recently.

In reviewing year-end reports, McDaniel noted that sales volumes for practically every appliance line marketed by Hotpoint were above 1952 levels.

The company markets 11 types of kitchen and laundry appliances.

Sales gains, shown by factory shipments and distributor activity, of about 40% over 1952 figures were recorded for electric ranges and refrigerator market, McDaniel said. A gain of almost 70% was recorded for automatic clothes washers and dishwashers.

Analyzing the past year, McDaniel said two prime influences were largely responsible for the company's 1953 sales gains. Consumer interest, generated at the retail level 12 months ago by introduction of new 1953 appliances, was immediately supported and expanded in all market areas by continuous merchandising programs integrated with heavy national, local, and cooperative advertising schedules.

The company's dealer organization, recently streamlined and still under revision, worked with Hotpoint distributors to consolidate 1952 gains and expand market potentials, he said.

A new system of weekly factory and distributor inventory controls now permits more balanced production levels in the company's Chicago and Milwaukee factories, giving flexible schedules for appliances in heavy seasonal demand.

Rumors of "recession" he feels are exaggerated. Definite indicators for continued prosperity, with relatively small inventory and production adjustments, can be found in population increases, new home formation, high employment, and high levels of disposable income, McDaniel noted.

It seems unlikely that 1954 will offer many marketing problems that cannot be solved by aggressive selling, and intelligent merchandising, McDaniel said. The American housewife wants good value at a fair price. That basic demand may well determine 1954's volume.

Further expansion into new markets is planned with a new mobile automatic dishwasher. This full-size machine is designed for rental homes and apartments, an untapped market of over 20 million homes heretofore excluded because of landlord or installation problems.

Appliance Business Is Peanuts

MURRAY, Utah—Refrigerators and peanuts go together.

That's what Thomas B. Neff Home & Auto Supply Store discovered here recently when they held a special Peanut Night.

Residents of Murray and vicinity were invited to come into the store, browse around, and eat all the free peanuts they could hold.

Pails of freshly roasted peanuts were placed strategically around the show room and visitors were invited to browse around among the appliances and shuck the peanuts, eat them, and throw the shells on the floor.

Thomas B. Neff, owner and manager of the store, said the novelty appeal of the Peanut Night resulted in terrific store traffic and more than a few actual sales.

Gilbert To Manage New Westinghouse Credit Union

PITTSBURGH—Chester F. Gilbert has been elected vice president and appointed general manager of the newly-organized Westinghouse Credit Corp., it was announced recently by George G. Main, treasurer of Westinghouse Electric Corp. and president of the new subsidiary. Gilbert has been manager of the Westinghouse retail finance division since joining the company in 1945.

Capitalized at $10,000,000, the new credit organization will supplement, not replace, the six-year-old Westinghouse Equity Plan, under which more than 4,500 banks and credit agencies are providing local financing for Westinghouse dealers.

Cline Heads Gibson's International Sales

GREENVILLE, Mich. — J. L. Johnson, vice president in charge of Gibson sales, has announced the appointment of A. R. Cline, Jr. as manager of the International Sales Div. of Gibson Refrigerator Co.

Cline, up until his promotion to manager, served as assistant manager of this division and directed Gibson's sales activities in the Canadian territory. He has a background of engineering and sales.

A graduate of the University of Michigan, Cline has been with the company for the past six years and succeeds Frank Heller.

Johnson said Gibson's international business "has been increasing steadily, and we expect a great sales years in 1954."

Philco Will Sponsor Don McNeill on TV

PHILADELPHIA—Philco Corp., for the past eight and a half years a sponsor of Don McNeill and the "Breakfast Club" over the American Broadcasting Co. network, has announced that it will also sponsor the television simulcast of that show starting Monday, March 29.

The "Breakfast Club," voted by radio editors from coast-to-coast as the most popular morning variety show on the air, will come from Miami Beach, Fla. during the weeks of March 29 and April 5. Philco sponsorship of the simulcast, it was said, made possible the television broadcast of the show from Florida prior to its return to Chicago on April 12.

Freezer Prices Lowered In Sears Mid-Spring Catalog

CHICAGO—Lower prices on two freezer models and a price of $374.95 on the new Coldspot "Super Mart" refrigerator with freezer at the bottom were listed in the mid-spring sales catalog issued by Sears Roebuck & Co.

The $399.50 price tag on the 18-cu. ft. upright freezer was said to represent a $30 savings. A $25 saving was offered on the 11.1-cu. ft. model priced at $294.50. A starter kit of packaging materials is offered with both freezers.

Tappan Develops Electronic Range For Home Use; Cost Still A Factor

MANSFIELD, Ohio — Introduction of electronic home cooking, "where a cake bakes in three minutes in a cold oven," was announced here recently.

Alan P. Tappan, president of The Tappan Stove Co., said his company has produced the first electronic cooking range designed for the home kitchen. It was developed in conjunction with Raytheon Mfg. Co.

These electronic ranges have been placed in kitchens of family homes where they are now operating on a three-meal-a-day basis.

"The home installations climax years of intensive development work on this revolutionary method of cooking that opens an entirely new concept of meal preparation," the company declared.

"By the electronic cooking method, food is warmed from within, the cooking container itself is not heated. Bacon can be broiled on a paper plate, with a paper napkin crumpled underneath to absorb the grease.

"Ears of popping corn are buttered and salted, then placed in a plastic bag to pop right off the cob in the electronic oven. Vegetables can be cooked directly in the china dishes in which they are served.

"Walls of the oven remain cool, testing homemakers have reported. And the cook can reach right into the oven and remove a sizzling hot steak on a platter without using hot pads."

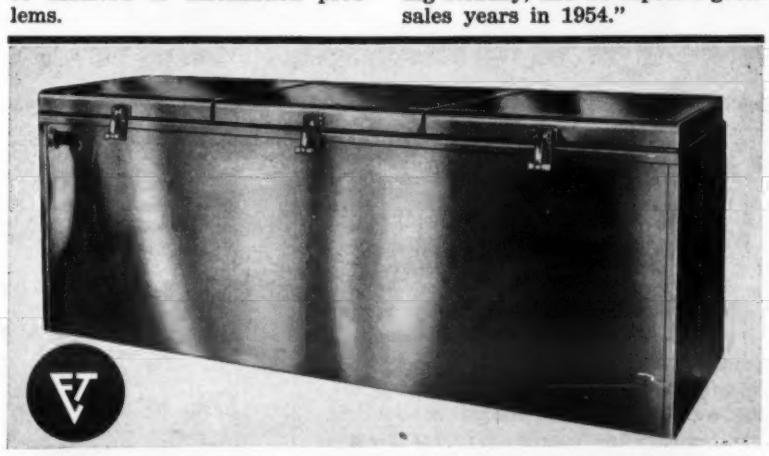
Homemakers will have to revise their cooking timetables with this new "cold oven" cooking, according to Tappan.

"Cheese will melt in five seconds," it was stated. "A baked potato will be ready for eating in five minutes. Even the 16-lb. stuffed Thanksgiving turkey will only need an hour and fifteen minutes of cooking.

"The inside of the cool walls of the electronic cooking cabinet can be cleaned as quickly as the outside, in a matter of seconds with a wipe of a cloth. Pot washing can be eliminated as food is cooked directly in the utensils in which it is served."

As these first ranges undergo their "kitchen runs," Tappan pointed out that limited production and high cost of the initial units will restrict the market for these electronic ranges for some time to come.

Quantity production is expected to begin sometime in 1955, with a limited number of units being turned out during the first year.



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Vital Views & Facts on Residential Air Conditioning Come Out During Open Forum Staged by ASRE Section

Finance, Building, Manufacturing, Engineering Represented on Panel

By F. Dunning Rupprecht, moderator of the forum and chairman of the program committee

As you know, this is the second in our series of residential air conditioning, the first being a technical paper prepared by a member of our section here which clearly showed us that residential air conditioning has ceased to be a luxury item that can be used as a gimmick or sales presentation in some specialized housing. [This paper was published on pp. 6 and 7 of the March 8, 1954 issue of AIR CONDITIONING & REFRIGERATION NEWS.]

Residential air conditioning can now, and is being, placed in homes within the reach of the average person. Reports from the Home Builders convention in Chicago lead us to believe that the sales gimmicks of automatic dishwashers, dryers, and other appliances are now being eliminated with residential air conditioning being placed as No. 1 priority.

In this quick-opening field of residential air conditioning, which seems to have unknown limitations, problems have arisen which we have to face if we are going to proceed in any sort of organized manner.

4 Vital Elements

We have assembled here tonight what we consider four vital elements of this expanding development of home air conditioning. Our forum consists of representatives from finance, building, manufacturing, and engineering. Engineering in most cases is retained directly by the manufacturer. However, we feel that this vital field should have direct representation on this forum.

The theme of the forum is the interdependence of these four items or members, as we might say, or their interrelationship. What is it that the finance people need to have from the builder, the manufacturer, the engineer in the way of standards of performance, manufacturing methods, methods of construction?

What is it that the builder needs from the financing institution in the way of specific requirements of construction, as well as what does the builder need from the manufacturer in easy-to-install and easy-to-maintain equipment? Indirectly the builder needs the engineer to plan these systems so that operating costs and operating conditions may be satisfactory.

Manufacturers Must Know . . .

The manufacturers certainly must know from the lending agency what they need for minimum requirements for equipment. Possibly here is the place where this industry can be of great assistance to the FHA. The manufacturer must know what the builder needs in the way of flexibility and operation.

The manufacturer directly retains engineering assistance for guide in heating and cooling loads and controls and operating cost figures.

Certainly the engineer must know from the financing institution what they require, and the capabilities and the limitations, also, of the builder. Also the engineer can act as a guide for the manufacturer as to what type of equipment can be used.

So you can readily see that the members of our panel tonight are definitely interrelated. Our panel consists of leaders in their particular field.

It seems that the very first place to start in any discussion is finance. Certainly, if we don't find a means of adequately financing this rapidly developing field, the average man will not be able to purchase it, and it's a fundamental fact in American manufacturing that unless we have mass production we cannot get the price down.

Entire Forum Tape Recorded by NEWS

No subject today arouses greater interest than residential air conditioning. An outstanding forum discussion on that subject was recently arranged by the Baltimore-Washington section of the American Society of Refrigerating Engineers with top-flight speakers.

Officers of the section graciously offered AIR CONDITIONING & REFRIGERATION NEWS the privilege of making a tape recording of the forum and publishing the transcribed results. This is the first instalment.

'With Tears In My Eyes,' FHA Official Asks for Data on Operating Expense

By Curt Mack, Assistant Commissioner, Underwriting, Federal Housing Authority

Let me respectfully call to your attention, gentlemen, that, just as your moderator has said, under modern American conditions almost all purchases of capital goods particularly, and even of short-lived consumer goods in many instances, must be financed by sources of capital over and beyond those held by the purchaser-consumer.

We've had a sort of revolution in realty finance, and I speak particularly of residential realty finance but not exclusively so, during the last 15 years. Some of you gentlemen may remember when realty finance was a local proposition. You got your mortgage from some individual lender or from a local bank or savings and loan association or other source of capital, but it was local.

Now, if you please, it is a daily occurrence for a financial institution to buy in New York several millions of dollars of mortgages secured by properties in San Francisco, Houston, Seattle, Poughkeepsie, or what not, over the telephone without ever having seen, or being in fact deeply interested in, the security underlying the mortgage instrument—the contract.

If you'll excuse me, to get fundamental for a moment, mortgage finance is not a mysterious operation at all. It's a contract of money transaction between individuals or other legally authorized, able contracting parties. It is not a contract between a parcel of real estate and a lender, as is the popular misconception. Real estate itself cannot contract anything. Real estate is the security.

And therefore, since, by the metamorphoses of VA and FHA, there has been something added to this financing picture which is changing its complexion completely, that has made invested capital reflected in mortgage contracts negotiable, almost as negotiable as government bonds, though not quite so.

So then there is available to you through the builder, there is now on the horizon after considerable suffering, we now have at this moment and time, a relatively stable and satisfactory flow of mortgage money, I say "relatively" because that is not true in all parts of the country, but in this area and the eastern seaboard, we have had a substantial recovery of mortgage interest rates and the available flow of mortgage capital. So to this, what I think, is a young industry, the timing for the sale and finance of the kind of equipment that you folks are interested in is good.

Now I'm going to try to get a little more specific with reference to the anticipated flow of business between you, the builder, and us. In FHA we process cases, as you know. We analyze costs. We analyze value in relation to long-term use, not necessarily tied to cost. The fact that a commodity,

(Continued on next page)

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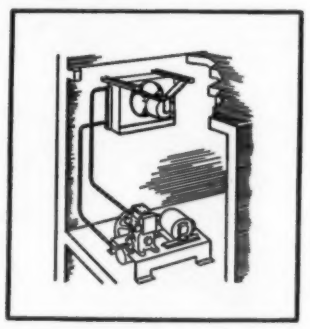

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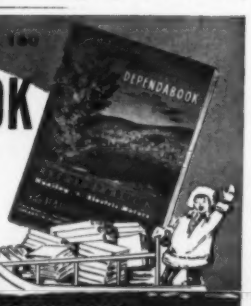

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Residential Air Conditioning

'We'll Go Along,' Mack Declares--

(Continued from preceding page)

including realty, costs a certain amount is not conclusively indicative of its value for use.

We could build rooms 3 ft. wide and 20 ft. long in a house. They would cost a lot but they would be practically worthless. I point that out to you because it is not inevitably so that value and cost are identical in a property any more than they are in a suit of clothes or some other commodity in exchange.

But in our processing we are interested in costs because costs constitute the upper limit of value in a competitive commodity such as residential realty is.

And that's not an FHA gimmick, that's fundamental. Adam Smith wrote of it in his *Wealth of Nations* many years ago. So I want to say to you that we have in FHA and VA, if you please, the problem of estimating cost—not only the cost of installation of this equipment along with thousands of other items, roofs, gutters, foundations, heating plants, plumbing, gas stoves, and whatnot, but also the cost of operation.

'Babes In the Woods'

The FHA, in spite of the fact that it takes in a 123-odd million dollars a year and spends only some 25 million of it operating its shop, and we have a very substantial surplus, is not able to afford engineers, mechanical engineers, and we are in our insuring offices in most instances what I think could be properly called "babes in the woods" in air conditioning, air cooling, air management.

I've been reciting this plea at every opportunity that was afforded me to say to you, "Now look, when you sell a builder see to it that your distributor, your salesman, your representative give that builder enough data so that he in turn can come in when he presents through his mortgage lender (FHA has no money to loan, we're an insuring agency, but we make these reviews), so that he can give us installation data, so that we won't have to reject a commitment or put it in abeyance—the application—and say, we don't know what you're going to do.

Hassles with Builders

When we get into hassles with builders over costs, nine times out of 10—we do 2,000 mortgage deals a day—it is because we have not been supplied adequate specifications to make a cost estimate. And if the builder omits the fact that he's using 16-oz. copper in his gutters and conductors, or if he omits that he is using a five-year guaranteed domestic gas water heater with a thermostatic control—if he leaves it out, it will never appear in our cost estimate.

You can help immensely in selling your commodity if you will bear in mind that FHA, which the builder has to go through, or VA, is going to want data in connection with this installation. We don't know very much about it. We're depending on you. I'm not worried about you fellows who are members of the institute and the association; I'm worried about Joe Doakes who's got a tin shop over on Arch St. in the rear and who's buying some compressor and is running some sheet metal through his crimpers and comes up with an "air-cooling unit." That's our worry, not yours. You're not making that stuff.

Costs Are Elemental

With tears in my eyes and in your interest I ask you most sincerely, give us your best knowledge of operating expense. If you don't know it, how are we going to know it? Now, most of these boys when they buy houses in these developments are buying right up to the ears. It's one of our jobs not to be a party to overpurchase because that's a profound, elemental thing in connection with mortgage finance just as it is in buying an automobile or a pair of socks, or anything else.

If this guy, this buyer, this Joe Homeowner, is up to his ears without air conditioning, and air conditioning costs him $18 a month, he's going to be rejected, and it isn't because your equipment is no good. It's because in our mortgage credit processing, we think that this guy, whoever he is, is being oversold, and it's just as much a bad deal for you as it is for the builder and the mortgagee.

'Give Us Expenses'

I want to call your attention to this. I know you're engineers, I know you're manufacturers, I know you're salesmen. As your moderator has pointed out, first you've got to get your financing. Give us operating expenses. We expect it from you and we've got a right to expect it from you because you fellows are writing the ticket. You're getting the experiments, you're doing the testing, not we. We'll buy your deal, we'll go along with air conditioning.

Personally, I think that any multi-family property in this temperate zone and south that doesn't have air cooling is obsolete, partly, the day it's finished. That's not entirely true in residences because we've got fans.

Builder Says Air Conditioning Is Not 'Open Sesame' to Increased Home Sales

By Harry Sarshik, President, Home Builders League of South Jersey, Haddonfield, N. J.

Three years ago the president of the National Association of Home Builders, Dick Hughes, made a statement which probably many of you saw—that within about five years any home not air conditioned would be obsolete. Many people at that time thought he was joking, but he was never more serious in his life.

It Couldn't Be Done

I think within another two years he'll see the largest part of his prophecy come true. He told the manufacturers three years ago the many things they should be doing but said they couldn't do. It's turned out now that we now have the type of equipment which they said couldn't be had. I think that in another two years we'll have equipment which will make today's equipment obsolete.

However, that doesn't take away from the basic problem of air conditioning residential developments. The home builder has several problems when, as, and if he decides to air condition. No. 1 is the very important fact which Curt Mack brought out—the financing element. Your merchant builder today, in addition to being a master of many, many facets of our business—the mechanical end, the construction end, merchandising end—has to know all these things that Curt Mack didn't have time to tell us in the nine minutes. We have to master those fundamentals because it's our bread and butter.

We find this. If we put in a typical $1,000 air conditioning installation, that somewhere along the line in the submission of our specifications to the FHA, we must receive a tremendous percentage of that cost for added value to the mortgage. If we don't, we're making the purchaser pay it in an increased down payment. I think very few people would quarrel today that many builders are selling monthly payments. I think that's basic whether you buy a car or whatever else you buy on time payments, you buy monthly payments.

And if we make that initial jump on down payment, which is a large part of this problem, too large, the purchaser will not buy from you. He doesn't have to have air conditioning. Nobody has to have air conditioning. We're out to sell it to the public today. And just how do you sell air conditioning? I don't think anyone yet has come up with the answer.

For sure, no one can take air conditioning and add it to a poorly planned home, to a poorly located home, and hope that that's the tail that wags the dog. It just doesn't work out that way. Air conditioning can only be sold when it's part of a well planned home, a well located development. Then air conditioning has its proper place in the scheme of things.

How to Merchandise

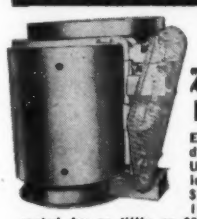
Too many people have found out that you cannot sell homes just because they have air conditioning. Now how can a builder merchandise air conditioning? That has been one of our problems. You can plaster signs all over your house, "Air Conditioning." You can hang filters up showing them dirty, clean, before, after, but how do you make people comprehend those two words, "air conditioning." That's been our most difficult problem.

And strong as it may seem, we have found that air conditioning has not been the sales gimmick that we thought it would be. There are many reasons for that, but it has not turned out to be that "open sesame" to increased sales.

I think this, and I've said it publicly many times before, there is no finer addition to any house built than air conditioning that a builder can put in. I think the values to be derived from air

(Continued on next page)

Low-Cost Performance Guaranteed The Year-'Round



with KENT ZERO-CHIP ICE UNITS

Efficient, compact, well-designed, the KENT Ice Units provide year-'round ice needs for as low as $1 per ton. Capacities 1½ to 24 tons—may be rented for as little as $3.50 per ton. No mess, no wet, sloppy ice! No moving drums, or metal to metal contact. All PARTS GUARANTEED 5 YEARS! Produces sub-zero, easy-to-handle ice. Check the savings in labor, maintenance, operational costs! WRITE FOR FREE FOLDER, COMPLETE PRICES!

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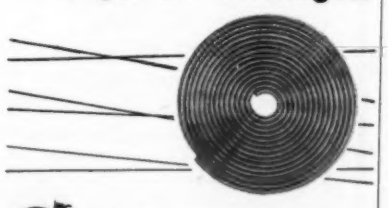
2210 So. Michigan Blvd.—Chicago 16, Ill.

Phones: DAnube 6-6434-5-6-7-8

VIKING

a sign of strength



Viking copper tube is annealed with precision uniformity insuring speedy, efficient, trouble-free fabrication and strength.

Triple-sealed Viking tube remains extremely dry and absolutely free of dirt. The seal is made to pass through any opening large enough for the tube itself.

Viking refrigeration tubing is soft and pliable—can be formed, flared and expanded quickly without danger of fracturing and splitting.

VIKING copper tube co.

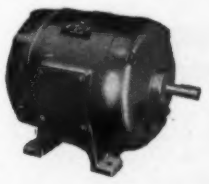
CLEVELAND 10, OHIO

PRECISION DRAWN SEAMLESS COPPER AND ALUMINUM TUBING

reliability makes Delco Motors FIRST CHOICE!

If you want a really dependable motor . . . a motor famous for year-in, year-out service . . . insist on a Delco! Specify Delco motors for all of your air conditioning and refrigeration equipment. These rugged, reliable power plants satisfy the most exacting requirements in any installation. For complete information regarding Delco motors, write Delco Products, Dayton, Ohio, or contact our nearest sales office.

THE BEST RUNNING MATE YOUR PRODUCT CAN HAVE!



Delco Integral HP Motors. Single-phase, repulsion-start, 1 through 5 hp. Polyphase, 1 through 100 hp.

Delco Single-phase, Fractional HP Motors. Capacitor-start for blowers and open-type compressors, ¼ through ¾ hp. Repulsion-start, ½ through ¾ hp.

Delco Hermetic Motors. Split-phase, capacitor-start, capacitor-start-and-run. Also polyphase. ⅛—15 hp.

Delco Condenser Cooling Fan Motors. 1/250 through 1/30 hp.

DELCO DAYTON OHIO

DELCO PRODUCTS

Division of General Motors Corporation, Dayton, Ohio

SALES OFFICES: ATLANTA • CHICAGO • CINCINNATI • CLEVELAND DALLAS • DETROIT • HARTFORD • PHILADELPHIA ST. LOUIS • SAN FRANCISCO

Home Builder Cites Many Problems--

(Continued from preceding page)
conditioning we do not even realize yet. I think that research work will bring that out in the next year or two. But we have increased health benefits which very few people can comprehend. There's a psychological and psychiatric adjustment—a beneficial one—that comes from living in an air conditioned house.

There Are Savings

There are, and we know it but we can't prove it, savings that come from living in an air conditioned house. And it's one of these intangible things that Mack at the moment is very wise not to recognize because it's not provable, but we do know that when people live in air conditioned homes in the summer time they don't go out to eat at restaurants quite as often as they do otherwise. We know they stay at home much oftener. We know they don't go away for weekends and for vacations and to resorts quite as often. We know that because the windows are kept closed a greater percentage of the time, cleaning bills go down.

Now these are intangibles at the moment on which a good bit of research work is being done. The National Association of Home Builders about a year ago gathered together all the diverse elements in the industry from the manufacturers down to the government agencies and ourselves. We all got together in a big room, locked heads, and we decided that we were going to build an air conditioned village. It's under construction down in Austin, Texas.

Somewhere around 24 homes are going to be built in which every type of research known is going to be conducted and we're going to come up with some of these answers to the problems and questions that we don't know.

As Curt Mack threw out the problem, how much does it cost to operate an air conditioning system? I doubt if there's anybody can give an authoritative answer. We all have good guesses. We have assumptions, but his agency needs that information to make financing easier.

I know that in our development where we're using a 2-hp. unit it costs 6 cents an hour every hour that unit runs for cooling. How many hours is that going to run a season? Our guess is 1,000 hours. We could be off a tremendous percentage one way or the other. But if our guess is right, $60 for a cooling season is not very much for comfort and for some of the benefits which will be derived.

Damage to Heating?

Now the builder has other problems in connection with air conditioning which are going to crop up and hit him maybe in a year or two or three from now. As you know, many manufacturers are partisans to various types of systems. I'm referring especially to air distribution systems. Now it's possible that a certain type of air distribution system might cause a heating unit, for example, not to operate too successfully after a year or two because of the method that cool air is passed through a heating chamber.

Now it's up to the industry to recognize its responsibility and I think they're coming around to that point, so that these problems that aren't foreseen at the moment, if they do backfire on us, that someone's standing back there to say, "well, we told you to do it this way, we'll take the responsibility."

Residential Air Conditioning

The local distributors at the manager level have not been fully acquainted by the manufacturers with all the new things that are going on in air conditioning. Day after day I have men come in my office and tell me, this is the way to do it. I say, why?

"Well, we learned it at school that way about 10, 15, or 20 years ago."

Many Things Now Obsolete

Many of these things have been made obsolete in the past two or three years. It's a very common thing in residential air conditioning to introduce the air at your low point, and yet many engineers that looked at our system said it wouldn't work, and yet it does work. People who live there are very happy. There are no uncomfortable drafts. These are the things we're finding out by experience.

Another problem is noise. Every manufacturer claims that his unit is the quietest one made. They're "whisper-quiet," "silent-free," and yet when you get in the house and you put a 2 or 3-hp. compressor banging away in a house, you can hear it regardless of what the advertising says. And we've got to be very careful on that point there, because when the purchaser buys, he buys from the sample home, and there are many people around generally and he's not conscious of that particular problem. When he moves in it's a different problem. They come running back to the builder, "I can't sleep at nights, I can't do this, I can't do that."

The problem is especially acute on wood joist floor space type of construction. That's another problem that we've got to anticipate.

Some of the manufacturers are using the split units in which you put your compressor and condenser outside. That helps to solve that problem. It may not be the complete answer to it.

Air vs. Water Cooling

Another big problem to which many manufacturers just close their eyes blindly and say we don't want to do anything about it is the question of air cooling vs. water cooling. In my mind it's not a particularly hot issue. There's just about only one way that the industry can move, and that's toward air-cooled equipment.

Those of you who are just wetting your feet in the residential air conditioning field will find out as you go into communities and you want to put 85, 100, 150, or 200 units within five acres, 10 acres, 23 acres will find one of two things happening.

No. 1 is that the community will not permit you to use the water you need to cool the units.

No. 2. If they do give you the water, their sewage system has not been designed to take care of that excess water. And I know from experience, from having correspondence with builders all over the country that this is a problem today, that the communities will not permit mass installations of that type of equipment—water cooled. Now you have towers and other types of devices which always have problems connected with them.

And in addition we have a utility problem. In many areas you'll get into, some of the utilities want three-phase equipment where you have mass installations in one area. Others want single phase. On building developments about six blocks apart where one development is three phase the other is single phase. And that complicates the manufacturers' problems because we can't get that standardized.

We have the problem of misleading advertising and that's one which I think everybody would do well to question themselves and ask, "am I guilty also?" Many manufacturers in an effort to simplify the selling of air conditioning have sold it on a square foot basis. "Our system will do x number of square feet."

That's swell on a room conditioner where you may not have all the problems inherent with ductwork, with exposure, with many people living, with cooking, entertaining, but we have found, and I have in my files, 2-hp. units rated all the way from cooling 500, 600 sq. ft. of house up to 1,200, 1,300 sq. ft. of house. Somebody has to be right and somebody has to be wrong.

The builder is not an engineer and cannot take advantage of all these facts. He's got to be told the right way and there has to be some standard.

Now I think there are a few of the problems that the builder has. Some of you may have additional ones which we can bring up later.

Editor's Note: Succeeding instalments of the forum transcription will present the talks by George S. Jones, Jr., managing director of ARI, representing the manufacturer; C. W. Nessel of National Warm Air Heating and Air Conditioning Association, representing the engineer, and the lengthy question-and-answer session which followed the formal talks.

FOR FREEZERS and ICE CREAM CABINETS

SAVES MONEY!

Cost savings result from a less expensive condenser and elimination of fan shroud. Also, by mounting condenser and fan motor directly to compressor, the stamped base is eliminated.

SAVES SPACE!

The ¼ h.p. model (S4814LP as compared with S4814L) is ½" lower and ¾" narrower at the compressor end. Condenser end is 1¾" lower, ¼" wider. Overall length is ⅜" longer. Allows a comparable reduction in the machine space.

BASELESS HIGHSIDE *AVAILABLE IN ¼ & ⅓ H.P. SIZES*

QUIETER OPERATING!

New type wire and tube condenser improves air flow and reduces air noise. This results in considerably quieter overall operation of the unit.

NON-CLOG CONDENSER!

Less likely to trap dirt and dust. Condenser efficiency is maintained because the possibility of poor air circulation due to a clogged condenser is minimized.

Contact your Tecumseh representative for full details on application and availability.

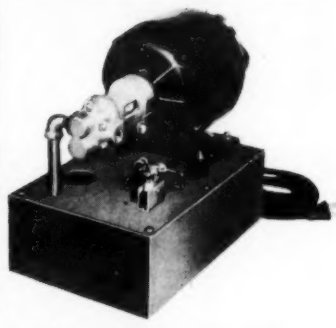
TECUMSEH PRODUCTS
TECUMSEH, MICH. Company
EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

★ The world's largest producer of condensing units for the refrigeration industry. ★

Congratulations to Jordon Refrigerator Company
on their move to the new factory.

TECUMSEH PRODUCTS CO.

eliminate pump-to-drain disposal line with



NEW high-pressure Condensate DISPOSAL UNIT (MODEL CCC)

- ⅓ H.P. MOTOR — pumps against 100 lbs. pressure
- AUTOMATIC OPERATION mercury float switch
- HOT-DIPPED GALVANIZED TANK

No need to run separate disposal line from this pump to the outside drain in air conditioning units.

$74.50 (F.O.B. Dallas) { to contractors — or order through your jobber

for full information — write or call

ASHCRAFT CO.
MECHANICAL EQUIPMENT
5643 Dyer Street • Dallas, Texas

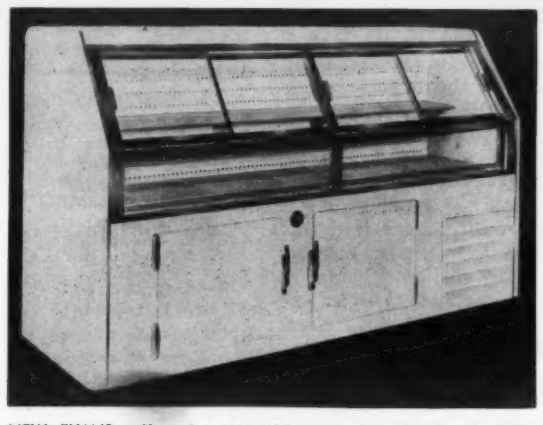
ENGINEER WANTED

Wonderful opportunity. Experience in design of semi-hermetic or hermetic refrigeration compressors preferred. Large, well-rated, Midwest manufacturer. Permanent position; salary open. Our engineers know of this ad.

BOX 4537, Air Conditioning & Refrigeration News.

What's New

When requesting further information on new products, please use "Information Center" form.



NEW EVANS self-service vegetable case can also be used for dairy items.

Evans Vegetable Case Doubles for Dairy Items

——KEY NO. D-350——

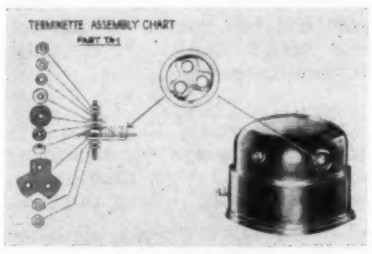
MT. VERNON, N. Y.—A self-contained display case that can be used for vegetables, for dairy products, or a combination of both has been introduced by the Evans Mfg. Corp.

The case is 8 ft. long and is equipped with a pull-out unit. Full vision glass front shows all merchandise displayed.

Glass doors can be removed to speed sales during rush hours, according to Evans.

Other features include fluorescent lighting, eye-level display, adjustable dividers and display racks, high humidity design, and storage compartment below the display shelf.

Replacement Kit Aids Repair of Fused Glass Terminals

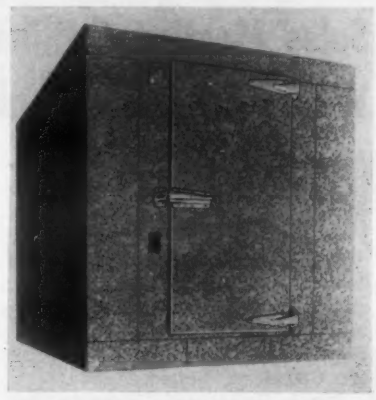


——KEY NO. D-351——

LONG ISLAND CITY, N. Y.—A new replacement kit for repairing the fused glass type terminals found on later model sealed units was announced recently by William Wagner, president of Wagner Tool & Supply Corp. here.

Called "Terminettes," the kit is easily and quickly installed. The defective fused glass type terminal posts are driven out and the Terminettes installed, much in the same manner as the older single post terminal replacements.

Complete installation instructions are available from refrigeration parts wholesalers, according to the manufacturer.



Bally Has New Low-Cost Walk-In Cooler

——KEY NO. D-352——

BALLY, Pa. — Bally Case & Cooler Co. has announced a new low-cost walk-in cooler "combining high refrigerating efficiency with economy in features and finish."

The new economy model is identical to the Bally Deluxe Cooler, but stripped of the latter's deluxe design features to reduce the price. Operating efficiency is the same.

The entire cooler, including the door, is clad with heavy 20-gauge galvanized steel instead of the aluminum painted finish which is on the sister deluxe cooler. The porcelain finish on both sides of the cooler door is also replaced by galvanized steel.

Instead of chrome-plated brass hardware, the economy refrigerator is eqquipped with zinc-coated malleable iron hardware.

Standard wall, floor, and ceiling sections in 2-ft. and 4-ft. widths are said to make the cooler easy to assemble and expand. Combinations of these sections permit making the cooler practically any size desired.

By adding a special freezer door section, the cooler can be converted into a walk-in freezer for temperatures no lower than 0° F.

12-In. Fan Will Move 1,200 C.f.m. at High Speed

——KEY NO. D-353——

DAYTON—A new 12-in. ventilating fan that will move 1,200 c.f.m. of air at high speed was announced recently by the Lau Blower Co. here.

Weighing about 18 lbs. and equipped with a carrying handle, it is easily portable. For use with casement windows, the new fan has a support bar that can be attached to the inside screen, so that the window can be opened or closed without moving the fan.

A special bracket will clip two fans together so that they can be used to get twice the air movement or to use one as an exhaust fan and the other as an intake fan, the company said.

The fan also operates at medium and low speeds to move 1,040 or 680 c.f.m. Suggested retail price for the 12-in. fan is $39.95. Lau also makes a 16-in. fan in the same style for $49.95 and a 20-in. fan for $59.95.

TYPHOON
Air Conditioning
ENGINEERED FOR EVERY NEED
PRICED FOR EVERY BUDGET

- Air Conditioning Units 1½-20 tons
- Multi-Packaged Systems Up to 60 tons
- Prop-R-Temp Heat Pumps 2-20 tons
- Evaporative Condensers
- Packaged Water Chillers

TYPHOON AIR CONDITIONING CO., Inc.
794 Union Street, Brooklyn 15, N. Y.

Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....

Products Advertised
(list name, page, and issue date)

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Name ..... Title .....
Company .....
Street .....
City ..... Zone..... State.....
Type of Business .....

MAIL THIS FORM TO

AIR CONDITIONING & REFRIGERATION NEWS
Reader Service Dept.
450 W. FORT ST. DETROIT 26, MICHIGAN

It's VICTOR that has
Everything for more sales in '54

- Complete Sizes and More Can't-Be-Copied Features
- Two Sensational Advertising Campaigns . . . Including BIG National Advertising in LIFE
- The Best Styling; Most Dependable Engineering and Manufacturing KNOW-HOW in the Industry
- Find Out About Victor and Victor's Advertising for More Sales for You TODAY!

Victor
VICTOR PRODUCTS CORPORATION, HAGERSTOWN, MARYLAND
QUICKFREEZERS • AIR CONDITIONERS • DEHUMIDIFIERS • BEVERAGE COOLERS • FARM REFRIGERATION • COMMERCIAL & INSTITUTIONAL REFRIGERATORS & MERCHANDISERS

MAIL THIS COUPON!
VICTOR PRODUCTS CORPORATION
Dept. A-3, Hagerstown, Maryland
Please send me more facts about Victor Air Conditioners, Quickfreezers and Commercial Refrigeration Products.
Name.....
Company..... Title.....
Address.....
City..... State.....

Eastern Gas Conference To Discuss Air Conditioning

PITTSBURGH—Gas all-year air conditioning will be the subject of a panel discussion planned for the eastern natural gas regional sales conference here on April 19 and 20.

James E. West of the Washington Gas & Light Co. will lead the discussion. The conference is sponsored by residential gas section, American Gas Association.

MR. GEORGE BRENAN
Florida Weathermakers
Jacksonville, Fla.

Take a tip from a star

Brenan's the name—George to his associates, star salesman to the judges who tallied the score of last year's Carrier Icemaker Sweepstakes. (Annual Carrier sales contest.)

In *three months and eighteen days* Mr. Brenan of Jacksonville's Florida Weathermakers sold 56 Carrier Icemakers. How did he do it?

With a planned program, agile footwork, and a firm conviction that he was selling the finest product of its kind. Read his story.

❝ **Carrier,** first in air conditioning and refrigeration, has used its long experience and engineering skill to build a line of icemakers truly worthy of the name Carrier. They have everything—and more—that prospects look for.

❝ **Ice-bill savings.** Save 80% or more on present ice costs with a Carrier filling all your ice needs for about 15c per 100 pounds (at average water and electrical rates).

❝ **Clean, crystal-clear ice.** As pure as the water you drink. It's made clean and it stays that way in a stainless-steel-lined storage bin.

❝ **Choice of cubes or 3 grades of crushed ice**—fine, medium or coarse. Crusher is factory-built-in; not a field-installed accessory.

❝ **Self-cleaning action.** Almost eliminates hand cleaning in even the hardest water areas.

❝ **Assured ice supply.** Around the clock, around the calendar. The bin is always kept filled—automatically. Ice is there when it's needed.

❝ **Simple operation.** No complicated mechanisms or cutting wires to separate the cubes. They are individually formed and gravity-dropped into the bin. Cuts service to a minimum.

❝ **Interchangeable bins and icemaking units.** Make 8 different combinations. Ensure getting the one model that fits daily ice needs exactly.

❝ **Unusually small floor space.** The Carrier with 160-pound-capacity storage bin uses only 24 by 25 inches of floor space. Less than that used by any other icemaker of comparable capacity.

❝ **What about prospects?** They're everywhere . . . hospitals, hotels, motels, restaurants, theaters, taverns, cocktail lounges, clubs, lodges, groceries, fish, poultry and supermarkets, schools, institutions—and even blood banks. What's more, *selling Carrier Icemakers has also led to the sale of several allied lines.*"

For a "star" money-making attraction (as dealer or salesman), mail the coupon. Or see the Carrier distributor listed in your Classified Telephone Directory.

Carrier
air conditioning
refrigeration
industrial heating

CARRIER CORPORATION, 310 S. Geddes St., Syracuse, New York

I'm interested in learning more about becoming a "star" in the selling of Carrier Icemakers. Send information.

*Name*_____

*Present Business or Occupation*_____

*Address*_____

Sales Meeting Outlines Plans for '54; Where Are Residential, Ice Maker Markets?

DETROIT—Who are the prospects for residential air conditioning and how do you reach them?

Carrier Corp.'s answer to that question was outlined for local dealers recently by Ted Scoglund, air conditioner product promotion manager for Carrier Corp., and Ron Hanzl, product specialist from the Cleveland district.

Frank Gordon of Carrier's Chicago regional office answered the same question in reference to automatic ice makers.

Hanzl told the dealers attending a sales meeting sponsored by Temperature Controls, Inc., local Carrier distributor, that Carrier expects that 150,000 new homes will install residential air conditioning this year. To reach this market, he said, the dealer should contact the volume builder, the small builder, and the custom builder.

The volume builder, he said, represents only 18% of all builders, yet he builds approximately 80% of new homes. Small builders he classified as those who construct from 10 to 25 homes a year. They represent 65% of the builders, but put up only 10% of the homes.

SEEK OUT SMALL BUILDER

The small builder, however, makes a good account for the air conditioning dealer, he said, because he will stick with the dealer through the years and is not so price conscious as the volume builder. The dealer with a half dozen such builders on his books will do a nice volume over a year's time.

The custom builder, Hanzl explained, constructs the larger homes on contract and is more inclined to purchase the custom type installation. These account for another 10% of the homes built.

In cracking the new home market, however, the dealer has to sell, besides the builder, the Veterans' Administration or the Federal Housing Administration, the banker, the architect, the realtor, and the engineer.

The way to reach these people, he advised, is through direct mail. He informed the dealers that Carrier has prepared mailing pieces and literature directed at each of these groups.

EXISTING HOME MARKET OFFERS 25,000,000 PROSPECTS

While dealers naturally think first of the new home market when looking for residential air conditioning prospects, Scoglund reminded the group that the existing home market is far and away larger than the new home market. There are 25,000,000 homes in the U. S. with central heating systems, he said, and a large percentage of them are of the forced air variety.

Sales prospects in this market include the homeowner himself, the home remodeling contractor, the merchant builder, and conversion heating organizations. Direct mail was also the recommended method to reach this market. Film presentations on the advantages of home air conditioning for various community groups such as women's clubs and PTA groups was also suggested.

Scoglund told the group that for dealers who want to get into the air conditioning business, but do not know how to go about it, Carrier has prepared a series of six "lessons" to give them "start off" training.

'PACKAGED' SALES LESSONS

Each lesson is a complete package in itself and requires about two hours for presentation.

The lessons cover such topics as background to air conditioning, principles of air conditioning, the survey, load estimating, product selection, air distribution, what the product will do and how to use it, how to sell to different type prospects, selling air conditioning for existing homes, and proposal writing.

Scoglund commented that this was no attempt to teach air conditioning in six easy lessons, but rather a beginning for the dealer or new members of the dealer's organization. It must be supplemented by further instruction by distributor and factory representatives.

Gordon reminded the dealers that the three elements to making a sale were interest—the need for your product by the prospect; desire—the ability to own the product; and the close.

In the case of automatic ice makers, he declared, the interest is already established. Every hotel, restaurant, motel, tavern, and many other business places use quantities of ice every day. All you have to do is show the prospect how he can buy an automatic ice maker.

SELL SAVINGS

Biggest and most appealing approach is through savings, Gordon said. In Detroit, for instance, the going rate for 100 lbs. of ice cubes is $1.80. An automatic ice cuber can make the same amount of ice for less than 20 cents, he contended.

There are many ways that this big saving can be dramatized to the prospect, he said, in addition to sitting down with him and figuring it out with paper and pencil. One successful campaign was based around letters written to the prospect which included coins. The first letter contained a penny—a slight recompense to the prospect for the money he was losing during the time it took to read the letter because he did not have an ice maker. Each succeeding letter contained larger coins pointing out how much commercial ice was costing the prospect.

Another dealer mailed the prospect $1.20 in cash as refund on one day's loss. Another salesman, when calling on prospects, would throw money out the front door to show the prospect what he was actually doing by not owning an ice maker.

"No sales story is as powerful as the savings story," Gordon declared.

Dennis Arnold, Chicago regional manager for Carrier, declared that this year, the "bee is on the salesman" like it never has been before to maintain our high level economy.

He reminded dealers that every person in their organization was a salesman. Even though a member of the organization does not have any direct contact with the public during working hours, Arnold said, he still represents that company to his friends and neighbors.

FILTRINE "Taste-Master" PURIFIER

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By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

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And mailed it to the New York publishing office.

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Makes husbands out of surprised men.

Saddest words of tongue or pen:
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IDEAL
Speed-Freeze
PRODUCTS

BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS.
(With Refrigerated Faucets)

WRITE
IDEAL COOLER CORPORATION
2953 EASTON AVE • ST. LOUIS 6, MO.

Eastern Gas Conference To Discuss Air Conditioning

PITTSBURGH—Gas all-year air conditioning will be the subject of a panel discussion planned for the eastern natural gas regional sales conference here on April 19 and 20.

James E. West of the Washington Gas & Light Co. will lead the discussion. The conference is sponsored by residential gas section, American Gas Association.

MR. GEORGE BRENAN
Florida Weathermakers
Jacksonville, Fla.

Take a tip from a star

Brenan's the name—George to his associates, star salesman to the judges who tallied the score of last year's Carrier Icemaker Sweepstakes. (Annual Carrier sales contest.)

In *three months and eighteen days* Mr. Brenan of Jacksonville's Florida Weathermakers sold 56 Carrier Icemakers. How did he do it?

With a planned program, agile footwork, and a firm conviction that he was selling the finest product of its kind. Read his story.

❝ **Carrier,** first in air conditioning and refrigeration, has used its long experience and engineering skill to build a line of icemakers truly worthy of the name Carrier. They have everything—and more—that prospects look for.

❝ **Ice-bill savings.** Save 80% or more on present ice costs with a Carrier filling all your ice needs for about 15c per 100 pounds (at average water and electrical rates).

❝ **Clean, crystal-clear ice.** As pure as the water you drink. It's made clean and it stays that way in a stainless-steel-lined storage bin.

❝ **Choice of cubes or 3 grades of crushed ice**—fine, medium or coarse. Crusher is factory-built-in; not a field-installed accessory.

❝ **Self-cleaning action.** Almost eliminates hand cleaning in even the hardest water areas.

❝ **Assured ice supply.** Around the clock, around the calendar. The bin is always kept filled—automatically. Ice is there when it's needed.

❝ **Simple operation.** No complicated mechanisms or cutting wires to separate the cubes. They are individually formed and gravity-dropped into the bin. Cuts service to a minimum.

❝ **Interchangeable bins and icemaking units.** Make 8 different combinations. Ensure getting the one model that fits daily ice needs exactly.

❝ **Unusually small floor space.** The Carrier with 160-pound-capacity storage bin uses only 24 by 25 inches of floor space. Less than that used by any other icemaker of comparable capacity.

❝ **What about prospects?** They're everywhere . . . hospitals, hotels, motels, restaurants, theaters, taverns, cocktail lounges, clubs, lodges, groceries, fish, poultry and supermarkets, schools, institutions—and even blood banks. What's more, *selling Carrier Icemakers has also led to the sale of several allied lines.*"

For a "star" money-making attraction (as dealer or salesman), mail the coupon. Or see the Carrier distributor listed in your Classified Telephone Directory.

Carrier air conditioning refrigeration industrial heating

CARRIER CORPORATION, 310 S. Geddes St., Syracuse, New York

I'm interested in learning more about becoming a "star" in the selling of Carrier Icemakers. Send information.

*Name*_____

*Present Business or Occupation*_____

*Address*_____

Sales Meeting Outlines Plans for '54; Where Are Residential, Ice Maker Markets?

DETROIT—Who are the prospects for residential air conditioning and how do you reach them?

Carrier Corp.'s answer to that question was outlined for local dealers recently by Ted Scoglund, air conditioner product promotion manager for Carrier Corp., and Ron Hanzl, product specialist from the Cleveland district.

Frank Gordon of Carrier's Chicago regional office answered the same question in reference to automatic ice makers.

Hanzl told the dealers attending a sales meeting sponsored by Temperature Controls, Inc., local Carrier distributor, that Carrier expects that 150,000 new homes will install residential air conditioning this year. To reach this market, he said, the dealer should contact the volume builder, the small builder, and the custom builder.

The volume builder, he said, represents only 18% of all builders, yet he builds approximately 80% of new homes. Small builders he classified as those who construct from 10 to 25 homes a year. They represent 65% of the builders, but put up only 10% of the homes.

SEEK OUT SMALL BUILDER

The small builder, however, makes a good account for the air conditioning dealer, he said, because he will stick with the dealer through the years and is not so price conscious as the volume builder. The dealer with a half dozen such builders on his books will do a nice volume over a year's time.

The custom builder, Hanzl explained, constructs the larger homes on contract and is more inclined to purchase the custom type installation. These account for another 10% of the homes built.

In cracking the new home market, however, the dealer has to sell, besides the builder, the Veterans' Administration or the Federal Housing Administration, the banker, the architect, the realtor, and the engineer.

The way to reach these people, he advised, is through direct mail. He informed the dealers that Carrier has prepared mailing pieces and literature directed at each of these groups.

EXISTING HOME MARKET OFFERS 25,000,000 PROSPECTS

While dealers naturally think first of the new home market when looking for residential air conditioning prospects, Scoglund reminded the group that the existing home market is far and away larger than the new home market. There are 25,000,000 homes in the U. S. with central heating systems, he said, and a large percentage of them are of the forced air variety.

Sales prospects in this market include the homeowner himself, the home remodeling contractor, the merchant builder, and conversion heating organizations. Direct mail was also the recommended method to reach this market. Film presentations on the advantages of home air conditioning for various community groups such as women's clubs and PTA groups was also suggested.

Scoglund told the group that for dealers who want to get into the air conditioning business, but do not know how to go about it, Carrier has prepared a series of six "lessons" to give them "start off" training.

'PACKAGED' SALES LESSONS

Each lesson is a complete package in itself and requires about two hours for presentation.

The lessons cover such topics as background to air conditioning, principles of air conditioning, the survey, load estimating, product selection, air distribution, what the product will do and how to use it, how to sell to different type prospects, selling air conditioning for existing homes, and proposal writing.

Scoglund commented that this was no attempt to teach air conditioning in six easy lessons, but rather a beginning for the dealer or new members of the dealer's organization. It must be supplemented by further instruction by distributor and factory representatives.

Gordon reminded the dealers that the three elements to making a sale were interest—the need for your product by the prospect; desire—the ability to own the product; and the close.

In the case of automatic ice makers, he declared, the interest is already established. Every hotel, restaurant, motel, tavern, and many other business places use quantities of ice every day. All you have to do is show the prospect how he can buy an automatic ice maker.

SELL SAVINGS

Biggest and most appealing approach is through savings, Gordon said. In Detroit, for instance, the going rate for 100 lbs. of ice cubes is $1.80. An automatic ice cuber can make the same amount of ice for less than 20 cents, he contended.

There are many ways that this big saving can be dramatized to the prospect, he said, in addition to sitting down with him and figuring it out with paper and pencil. One successful campaign was based around letters written to the prospect which included coins. The first letter contained a penny—a slight recompense to the prospect for the money he was losing during the time it took to read the letter because he did not have an ice maker. Each succeeding letter contained larger coins pointing out how much commercial ice was costing the prospect.

Another dealer mailed the prospect $1.20 in cash as refund on one day's loss. Another salesman, when calling on prospects, would throw money out the front door to show the prospect what he was actually doing by not owning an ice maker.

"No sales story is as powerful as the savings story," Gordon declared.

Dennis Arnold, Chicago regional manager for Carrier, declared that this year, the "bee is on the salesman" like it never has been before to maintain our high level economy.

He reminded dealers that every person in their organization was a salesman. Even though a member of the organization does not have any direct contact with the public during working hours, Arnold said, he still represents that company to his friends and neighbors.

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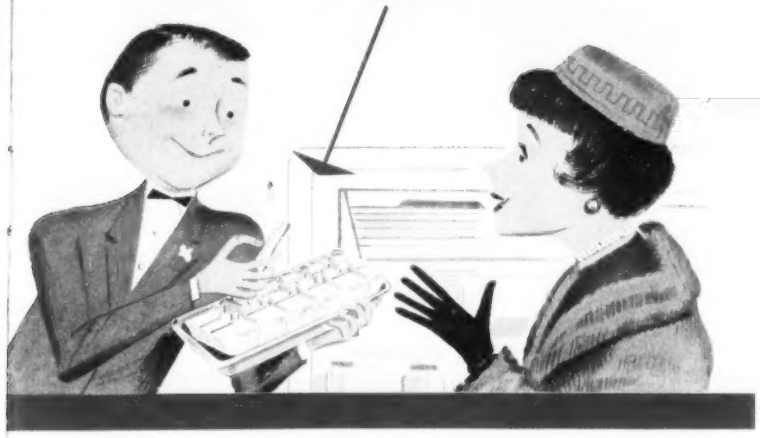
2953 EASTON AVE. • ST. LOUIS 6, MO.

These *NEW Inland Ice Trays* will help you sell refrigerators!



In the refrigerator field today . . . what's needed for the *hard* sell is the *new* feature! You know that. You know that sales can be initiated, promoted, closed, with *new* and *better* features that have *strong* appeal for customers.

Features like the NEW Inland Ice Cube Tray, that makes MORE ice cubes. Customers *want* more ice cubes . . . they can *see* the beauty of the new Inland Tray in colors.

Demonstrate it! Draw an Inland Tray from one of your floor models . . . show that it makes more cubes . . . talk of colors, the "Magic Touch" lever, "Lift! Tilt!" action . . . the easy, fast *convenience* in use! Give a real demonstration!

You'll sell more refrigerators . . . easier, faster sales . . for bigger profits!

Advertisements such as these in The Saturday Evening Post and Better Homes & Gardens will give direct selling help to YOU! It's a powerful presentation of the "new and better feature" appeal that's the prime extra selling force needed in today's refrigerator market.

New! Inland Ice Trays in 4 Gay Colors!

and more ice cubes, easier, faster!

Yes, here's real news! Now you can have more ice cubes, so easily and quickly, with the *new* Inland "Magic Touch" Ice Cube Tray. See? *Three full rows* of sparkling cubes, free and dry, sized *just right* for the glasses. *Today*, you can replace your old, outmoded trays with these new and better Inland Ice Cube Trays . . . offered now in four gay colors!

• • •

And when you buy a new refrigerator, be sure it is fully equipped with Inland "Magic Touch" Ice Cube Trays. Just ask your dealer for them.

"Magic Touch"* INLAND MANUFACTURING

ICE CUBE TRAYS

INLAND MANUFACTURING DIVISION, General Motors Corporation, Dayton, Ohio

New Inland Tray

gives More Ice Cubes Easier, Faster!

Want *more* ice cubes, sized *just right* for your glasses? You can *have* them *now!* Here's the *new* Inland "Magic Touch" Ice Cube Tray! Look at the three full rows of sparkling cubes, free and dry, *instantly* ready at a *lift* of the lever, a *tilt* of the grid! Get these wonderful *new* Inland Trays *now* . . . to replace your old, outmoded trays. They come in four gay and appealing colors!

• • •

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ICE CUBE TRAYS

INLAND MANUFACTURING DIVISION, General Motors Corporation, Dayton, Ohio

DISPLAY The New Inland Ice Trays where your customers can SEE them!

Here's an idea for *double-barreled display* . . . a display that will sell Inland Ice Cube Trays, and sell refrigerators too!

Thousands of people in your own locality have battered, out-moded, *inconvenient* ice trays. They're prospects for new ice trays *today!*

DISPLAY the NEW Inland Ice Cube Trays prominently . . . in your *window*, in your *store*.

Prospects will stop. Prospects will look . . . and see the beautiful colors. And you'll TELL THEM about the new feature of more ice cubes and the "Magic Touch" lever. Some of these people you can sell new refrigerators then and there. You'll get many *good* prospects for *future* sales. And you'll make many, *many* sales of the NEW Inland Trays as REPLACEMENTS . . . *profitable* sales on the *spot!* Try it . . . and you'll SEE!

Advertisements such as these in The Saturday Evening Post and Better Homes & Gardens stress the replacement purchase idea . . . urges YOUR customers to replace their OLD trays with NEW and BETTER Inland Ice Cube Trays, giving MORE ice cubes.

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'F-22' Characteristics and Factors In Designing System for Refrigerant Outlined by Lawrence

TORONTO, Ont., Can.—"Freon-22" offers 50 to 60% more cooling per unit of compressor displacement than does "Freon-12" and is coming into ever increasing use in a wide variety of applications, A. H. Lawrence, technical sales service manager of the Kinetic Chemicals Div. of E. I. DuPont de Nemours & Co., informed members of the Refrigeration Service Engineers Society of Canada here recently.

Its big value in home and industrial cooling equipment, he pointed out, is in maintaining a fixed cooling capacity with smaller equipment than required with "Freon-12" or in obtaining greater capacity without increase in machine size.

Speaking at the Canadian organization's 15th annual convention here, Lawrence explained the characteristics of "Freon-22" and outlined the factors to be considered in designing a system for use with that refrigerant.

Important Characteristics Of 'Freon-22'

Comparing the important characteristics of "Freon-22" with those of "Freon-12," ammonia, and methyl chloride (see Table 1), he warned that figures for compressor displacement for "F-12" and methyl chloride and for "F-22" and ammonia have led to the mistaken belief that one refrigerant can be directly substituted for another in refrigeration equipment.

"Many other factors must be considered in the choice of a refrigerant and the recommendation of the manufacturer should always be followed," he declared.

He noted that since the boiling point of "F-22" is lower than that of the other refrigerants listed in the table, somewhat higher operating pressures are developed under standard ton conditions.

The high circulation rate of "F-22" he said, offers the advantage of accurate control of evaporator temperature without the need for making critical adjustments in the controls.

Freezing Point

The freezing point of "F-22" is about the same as "F-12" and far lower than for ammonia or methyl chloride.

Lawrence said that when using "F-22," care must be taken in the type of gasketing material that is used. Certain synthetic rubbers such as special types of neoprene are acceptable, but natural rubbers are ordinarily unsatisfactory, he said. "F-22" will cause some gasket materials to swell up and thus lose their insulating properties, he declared.

"F-22" is a non-conductor of electricity in both the liquid and vapor state, thus making it satisfactory for use in hermetic systems where motors are exposed to the refrigerant. He said that "F-22" vapor at atmospheric pressure has a relative dielectric strength of 1.3 times that of dry nitrogen.

Moisture freezing at the expansion device has not been a major problem in systems charged with "Freon-22" due to its ability to hold a relatively large proportion of water in solution, Lawrence said. However, water is undesirable in any refrigeration system and care should be used to keep it out to prevent dilution of lubricating oils, corrosion of metals, and possible short circuits in hermetically sealed units, he added.

He said "F-22" will hold 37 times as much water as "F-12" at 0° F. and 70 times as much at 40° F. But, he warned, even with this greater ability to hold water, low temperatures reduce this ability and freezing difficulties may be encountered at the low temperature ranges.

Dryers Suitable for Use With 'Freon-22'

There are many ways to dry a system, he said, and when dryers are used, those containing activated alumina, silica gel, or calcium sulfate are suitable with "F-22." Use of anti-freezes is not recommended, he said, but when one is used as a temporary measure to get a system back into operation and avoid loss of material requiring refrigeration, the refrigerant, oil, and anti-freeze should be removed as soon as possible. Then the system should be cleaned, thoroughly dried, and charged with new refrigerant and oil.

"Freon-22" is miscible with oil at the temperatures found in the high pressure side of the system, Lawrence asserted. In general at temperatures existing in evaporators designed for 10° F. operation and lower, two layers are formed with the mineral oil floating on top of the liquid "F-22." Appropriate design features and the use of oil separators solve the problems it presents, he said.

Adding 'F-12' to 'F-22'

He noted that Tecumseh Products Co. is recommending that at 0° F. some "Freon-12" be added to the "Freon-22" to help carry off the oil that separates out of the "F-22."

"But before you do that," Lawrence said, "try an oil separator. The small amount of oil that will get into the evaporator will flow back to the compressor if the evaporator is installed above the level of the compressor."

He noted that "F-22" has a leakage rate only slightly higher than "F-12" at the same pressure and less than that of methyl chloride and ammonia. He said that the same method for detecting leaks of any "Freon" refrigerant applies to "F-22." A halide torch or lamp is one of the easiest and most effective methods, he said.

"No two refrigerants are exactly alike," Lawrence said. "Each has definite properties with respect to pressure-temperature-volume relationship, heat values, density, molecular weight, boiling point, freezing point, electrical resistance, solvent effect, corrosion, safety, and many other characteristics.

"These and other factors must be taken into consideration by equipment designers in order to design a product which will be dependable, perform properly, be of proper size and weight, safe, durable, and attractively priced to the consumer."

He declared that when a unit has been designed and built for a specific refrigerant, only that refrigerant should be used in the equipment. He noted that many difficulties can arise from substituting one refrigerant for another. He said "F-22" should not be considered a substitute in equipment designed for another refrigerant.

Here are factors he listed that must be considered in designing a system for "F-22."

The body, cylinder heads, pistons, and other parts of the compressor must have sufficient strength to stand the higher operating pressure of "F-22." Surface areas of connecting rod and crankshaft bearings must be adequate for the greater loads due to higher pressures.

The area of the condenser must have sufficient heat removal capacity to maintain a properly balanced system and the condenser must be strong enough to stand the higher pressures.

The volume of the receiver must be greater than for "F-12." The receiver must be built to withstand the higher pressures. Safety relief devices must be selected and set for the higher pressures.

Selection of expansion valves or capillary tubes must consider the lower circulation rate of "F-22."

The evaporator must be built for higher pressures and should be properly sized for the system. A "F-12" evaporator would generally be undersized for "F-22."

Controls must be selected for use with "F-22" and high and low pressure cutouts adjusted for that refrigerant.

A motor on a "F-22" system must be approximately 60% larger than for a "F-12" system, if it uses the same bore and stroke and operates at the same speed. Pulley and belt sizes and speeds must be appropriate for "F-22."

Gaskets, packings, and seals must be suitable for use with "F-22."

Lawrence declared that the advantage of "Freon-22" is that it offers an efficient method of obtaining lower temperatures and that it is possible to achieve greater capacity from a compressor of the same displacement.

There are two ways of obtaining lower temperatures, he said.

One is to operate the compressor at low back pressure, causing the refrigerant to boil at a lower than normal temperature. The other is to use a refrigerant with a lower boiling point.

If a refrigerant with a low boiling point is used, the required low temperature may be obtained with a relatively high back pressure. If a lower back pressure is used, lower volumetric efficiency results because the gas for compression is not as dense.

A reciprocating compressor using "F-12" refrigerant to produce a temperature of -40° F. in the evaporator must operate at a negative pressure of 11 in. of mercury.

A compressor of the same bore, stroke, and speed, using "F-22," will operate at the same evaporator temperature with a gauge pressure of 1 lb., and at a negative back pressure of 11 in. of mercury, will achieve a temperature of -58.5° F.

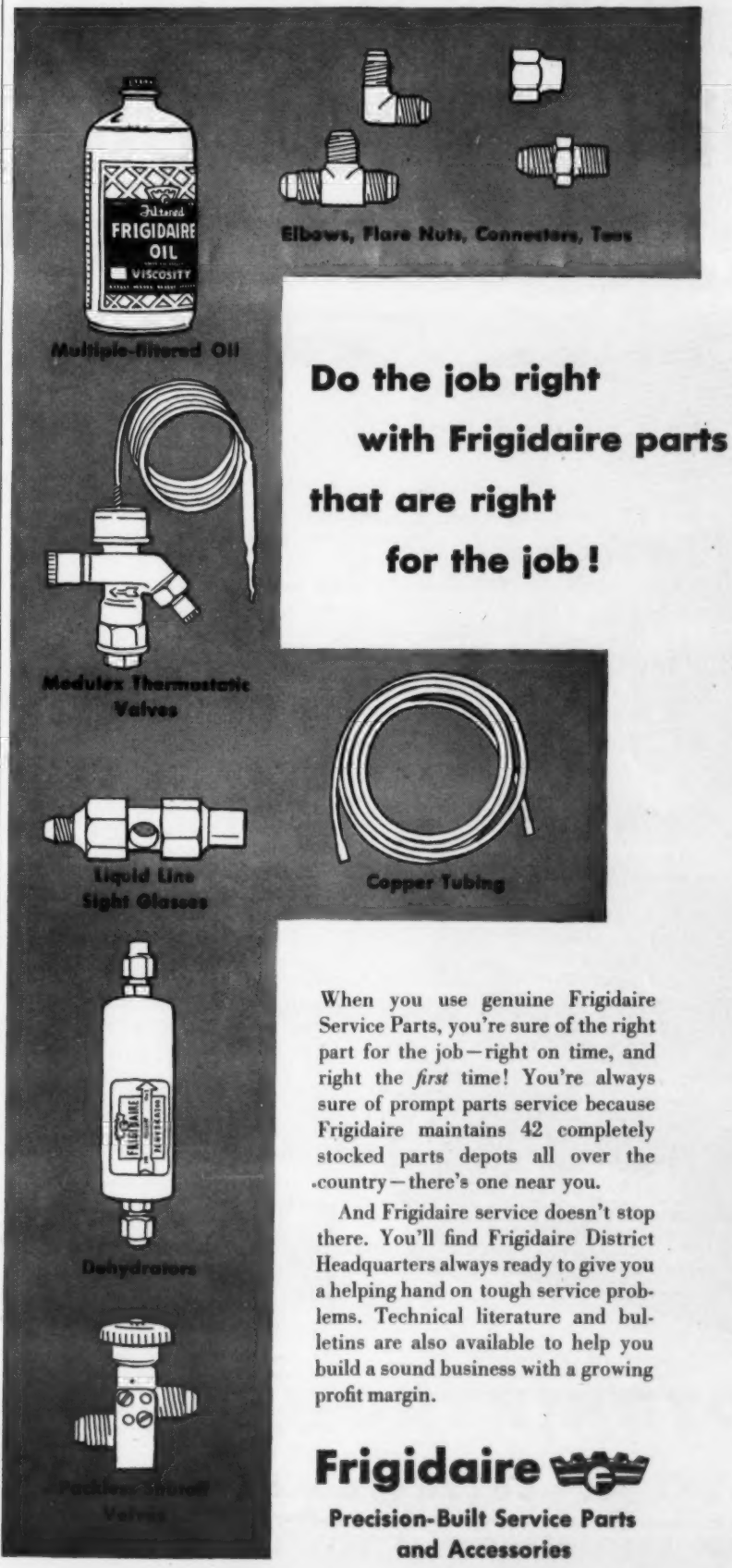
In conclusion, Lawrence noted that the lower temperatures that may be obtained with "Freon-22" have resulted in its wide usage in the industrial field. Many applications were developed during the war and many more have since appeared.

These include open type display cases, packaged air conditioning units, and automobile air conditioning systems.

Refrigerant Characteristics

(Standard Ton Conditions)

	"Freon-22"	"Freon-12"	Ammonia	Methyl Chloride
Boiling Point (1 atm.), °F.	-41.4	-21.6	-28.0	-10.8
Condensing Pressure at 86° F. p.s.i.g.	159.8	93.2	154.5	80.0
Evaporating Pressure at 5° F. p.s.i.g.	28.3	11.8	19.6	6.5
Lbs. of Refrigerant per Min.	2.89	3.92	0.42	1.33
Theoretical Compressor Displacement (cu. ft./min.)	3.60	5.82	3.44	5.95
Freezing Point (1 atm.), °F.	-256.0	-252.0	-108.0	-144.0



When you use genuine Frigidaire Service Parts, you're sure of the right part for the job—right on time, and right the *first* time! You're always sure of prompt parts service because Frigidaire maintains 42 completely stocked parts depots all over the country—there's one near you.

And Frigidaire service doesn't stop there. You'll find Frigidaire District Headquarters always ready to give you a helping hand on tough service problems. Technical literature and bulletins are also available to help you build a sound business with a growing profit margin.

Frigidaire

Precision-Built Service Parts and Accessories

These servicemen are sold on genuine Frigidaire Parts —and so are their customers!

Keeps customers sold on your service department

"The use of Frigidaire parts eliminates costly repeat calls . . . insures low-cost maintenance year in and year out . . . keeps the customer sold on your service department."

H. V. Lohmiller, H. V. Lohmiller, Inc., Philadelphia, Pa.

Parts always fit

"We find that genuine Frigidaire parts always fit and do the job they are designed to do."

J. V. Carden, Carden Service Store, Meridian, Miss.

One trip does it

"Our service department can be operated profitably only if 'one trip does it.' Genuine Frigidaire parts reduce the number of call-backs to a bare minimum."

Kenneth Kraft, Kenneth Kraft Co., Pine Bluff, Ark.

Less call-backs . . . more installations, profits

"Since using Frigidaire parts on jobs we have been able to reduce our number of service call-backs. This leaves our servicemen free to install more new equipment and increases profits for us."

William Egerman, Egerman Store Fixture Co., Pittsburgh, Pa.

Service efficiency increased

"We feel that a much more efficient service can be rendered on a Frigidaire appliance by using genuine precision-built Frigidaire parts."

John J. Murphy, Murphy Sales & Service, Camden, N. J.

Year guarantee beneficial

"We are sold and sell our customers on quality replacement parts. We also find that Frigidaire's year guarantee on parts is beneficial to us and to our customers."

Dale Steele, Steele's Authorized Service, Lynwood, Calif.

How To Use Storage Units

Ice Accumulator Systems Offer Large Tonnages of Refrigeration For Short Periods for Product Cooling, Industrial Processing

*By J. E. Hutchinson, Manager, Dole Refrigerating Products, Ltd., Brantford, Ont., Can.**

Editor's Note: This is the second instalment of an article explaining how Dole ice accumulator plates can be applied to various jobs.

Let us take as an example a dairy processing 12,000 lbs. of various milk products per day, with a processing time of four hours. We have taken the specific heat at 1 B.t.u./lb. for easy figuring. Seventy degree water is available for the first cooling stage so we assume the temperature of the product to be 80° when it reaches the chilled water section of the cooler, where it is to be reduced to 40°, or a temperature reduction of 40°. Multiplying these factors together we get a result of 480,000 B.t.u. or 40 tons load.

Before going any farther I would like to explain that we base the capacity of the condensing unit operating an Ice-Cel at 20° suction temperature. If the actual capacity of compressor is not known we estimate it to be .8 tons or 9,600 B.t.u./hr. per hp. In this way, a 10-hp. unit would figure out to have 8 tons capacity, a 5 hp. would have 4 tons, and so on. In this example, we find a 3-hp. unit at 2.4 tons has an operating time of just under 17 hours.

It is permissible to deduct the capacity of the condensing unit from the total load if it operates during the cooling period, so we reduce the total load of 40 ton-hours by 4 times 2.4 tons or 9.6 tons giving a required holdover in the Ice-Cel of 30.4 ton-hours. This fits in nicely with the capacity of a model LHS 31. It is also to be noted that if the compressor is not operating during the cooling period, then the full 40 tons or two LHS 21 Ice-Cels will be required.

We now come to the calculation of the water requirements. As I have mentioned, with low temperature water there are certain minimum circulation needs for each model of Ice-Cel. For the LHS 31 this is 125 U.S. g.p.m. or about 104 Imperial g.p.m., so our pump (see Fig. 2) is to have this capacity. However, the milk cooler is designed for a 4° temperature rise or, as it is sometimes termed, a circulation of 5 g.p.m. per ton.

This is arrived at in the following manner: 40 tons or 480,000 B.t.u. over the four-hour processing period is 10 tons or 120,000 B.t.u./hr. One Imperial gallon of water weighs 10 lbs. so at a specific heat of 1 B.t.u./lb./° and a temperature rise of 4°, 1 gal. of water absorbs 40 B.t.u. It therefore takes 120,000 ÷ 40 or 3,000 gals. per hour to handle the load.

This figure, divided by 60 minutes, gives 50 g.p.m. required, since the hourly load is 10 tons, this is the basis for the term 5 g.p.m./ton.

As we have provided 104 g.p.m., and the coil only required 50, we by-pass the remaining 54 back into the tank. The temperature reduction to the warm water coming back to the tank is, as I have mentioned before, helpful in reducing the load on the ice.

If the processing equipment is of the type which is designed for a 2° temperature rise, then the complete delivery of the pump may be passed through the cooler, eliminating the need for a by-pass.

It is interesting to note that if direct expansion had been used on this job, 10 tons of refrigeration would have been required, or if brine had been the cooling medium, the brine tank would have been of about 5,000 gals. capacity.

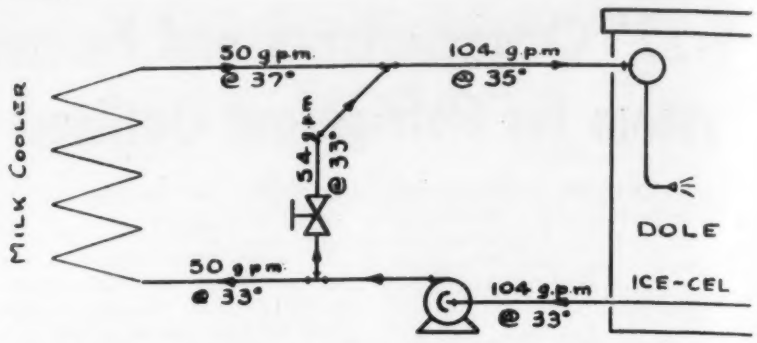


FIG. 2 is a schematic of system for a milk cooler which includes Ice-Cels.

Air Conditioning Application

So much for an example in product cooling. Now we come to the other major field for the Ice-Cel, namely air conditioning. We must bear in mind the fact that the purpose of this equipment is to provide refrigeration capacity to cope with high peak loads of relatively short duration and consequently not to replace direct expansion. We shall see however, that in numerous applications the two work together to excellent advantage.

One example of this would be in the case of let us say a restaurant whose direct expansion equipment has been installed for some years. It is not now doing the job satisfactorily for several reasons. It has lost some of its efficiency through normal wear and tear. Increased business and enlarged premises, a little here, a little there, have increased the load to a point where conditions are not satisfactory, and customers are walking out.

The owner is in a somewhat difficult position. The trade-in value of the equipment is practically nil. Not only is new mechanical equipment required, but larger ductwork also may be necessary. This problem can have a satisfactory solution in the use of an Ice-Cel.

Idle Time Builds Up Ice

The compressor on the present system will not operate at night, having a layoff time of possibly eight to 10 hours. If connected to an Ice-Cel, this idle time is put to work to build up ice in the Ice-Cel at night leaving the system free to do as much of the job as it can during the day.

A large part of the load in a restaurant is ventilating. By placing a chilled water coil in the fresh air intake duct, and controlling the Ice-Cel pump by a thermostat in the return air duct leading to the direct expansion coil, the outside air is cooled only when the present equipment is not adequate, which probably is only for a couple of hours during the noontime and three or four in the evening.

It will be obvious that the same system may be worked where the customer wishes to add another room to his present setup, possibly for banquets, service club meetings, or the like. The load is intermittent and of short duration, but heavy while it lasts, and this is where the Ice-Cel shines.

Another variation of the same arrangement is where the customer may have self-contained conditioners, which are able to handle off-peak loads quite satisfactorily but which need a shot in the arm during peaks. It is usually impractical to hook self-contained compressors up to any other equipment so we would recommend a separate unit with an Ice-Cel. Once again we have the advantages previously discussed of a 24-hour operating period, if desired, with the resultant reduction in compressor sizing, power costs, water saving devices, and so on.

Typical Example

Table 2 shows the calculations on a typical example of the problem we have just been talking about. This restaurant has a 10-ton direct expansion system which is adequate except for about eight hours per day. It also has an eight-hour layoff period during the night. The excess load, in ton-hours, is added as shown in order to determine the proper capacity of the Ice-Cel.

Since the compressor does not operate on the Ice-Cel during the cooling period, the Ice-Cel must have capacity to handle the full load by itself. The compressor recharges the Ice-Cel during the previously idle night period.

On the same example except that a separate unit is to be used, we find a 3-hp. unit with a 2.4-ton

(Concluded on next page)

*Presented at the 15th annual convention, Refrigeration Service Engineers Society, Toronto, Ont., Can.

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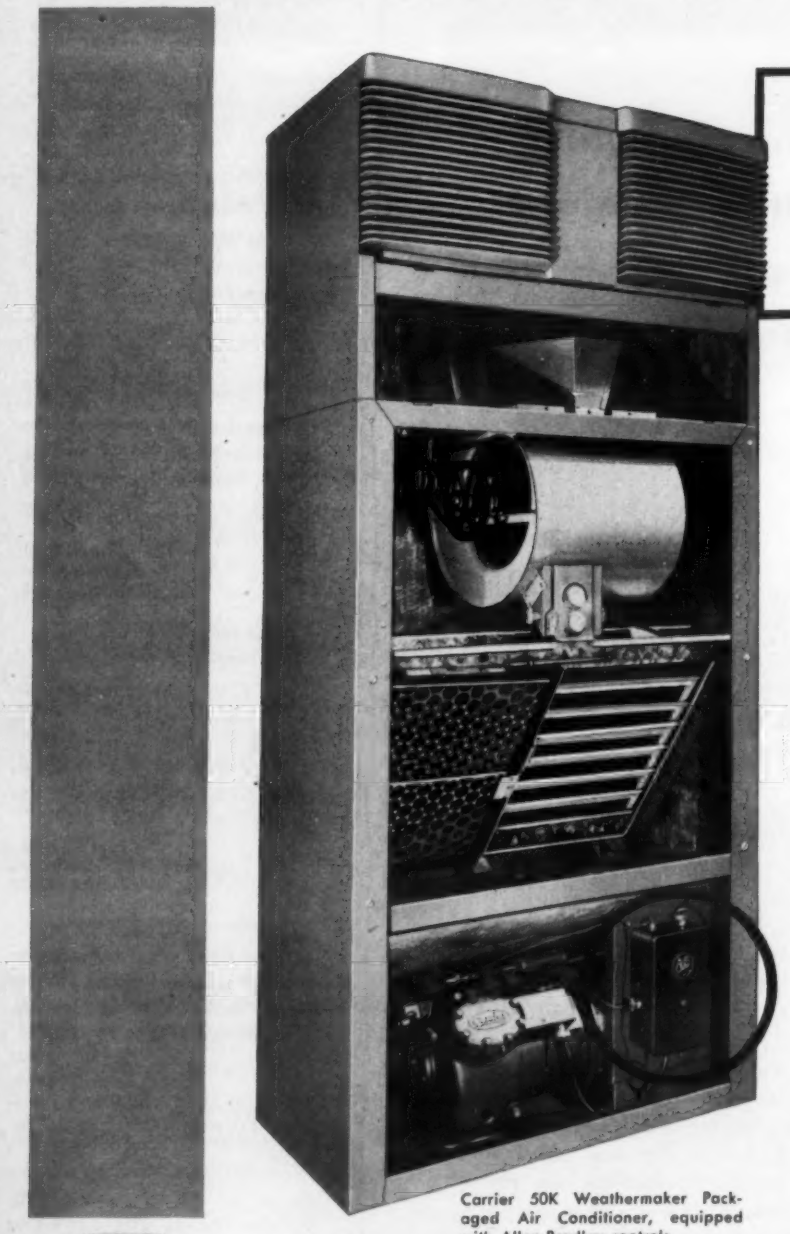

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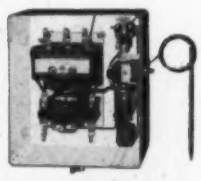

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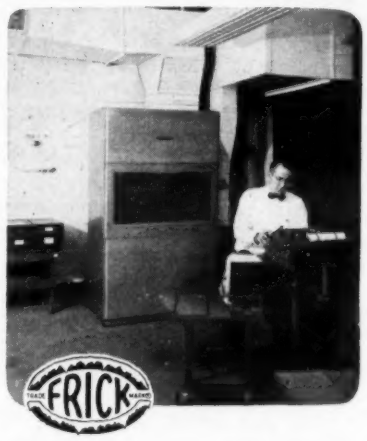

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Ice Accumulator Systems--

(Concluded from preceding page)

capacity operates about 16½ hours per day on this load. Since with this type of system the compressor operates during the cooling period, we can deduct this eight hours of compressor capacity from the over-all 40 tons, coming up with a net of about 21 tons required instead. This fits in with a model LHS 21.

In figuring the water circulation required it is necessary of course to make provision for the greatest hourly load. This is 8 tons or 96,000 B.t.u./hr. Since the allowable temperature rise through the coil is 8°, it will be necessary to circulate 96,000 ÷ 8 or 12,000 lbs. per hour, or 12,000 ÷ 60 equals 200 lbs. per minute. At 10 lbs. per gallon, this equals a circulation of 20 Imperial gallons per minute.

Usually, the temperature of the water entering the coil in this type of installation is not too critical but if accurate conditions are to be maintained, it is advisable to place a mixing valve behind the pump. This device is thermostatically controlled by the temperature of the water entering the coil and when this temperature gets too low, allows some of the warm return water from the coil to mix with the chilled water, tempering it to the proper temperature.

• • •

Table 2—Restaurant Application Problem

A 10-hp. direct-expansion system handles the load except for peaks as follows:

	Load		
11 to 12 p.m.	12 tons	=	2 tons excess
12 to 1 p.m.	16 tons	=	6 tons excess
1 to 2 p.m.	16 tons	=	6 tons excess
2 to 3 p.m.	12 tons	=	2 tons excess
5 to 6 p.m.	14 tons	=	4 tons excess
6 to 7 p.m.	18 tons	=	8 tons excess
7 to 8 p.m.	18 tons	=	8 tons excess
8 to 9 p.m.	14 tons	=	4 tons excess

Excess Capacity Required = 40 Ton-hours

System shut down from 12 midnight to 8 a.m. = 8 hours idle compressor time.

Capacities of Ice-Cels at 40° maximum water temperature:

LHS 12 = 16 ton-hours
LHS 21 = 27 ton-hours
LHS 31 = 41 ton-hours

Select LHS 31 Ice-Cel unit.

Ice-Cel to have its own unit.

3-hp. unit at .8 tons/hp. has a total of 2.4 tons/hr.

40 tons total divided by 2.4 tons results in about 16½ hours operating time.

Total capacity required	40.0 ton-hours
Less 8 hours operation at 2.4 tons/hour	19.2 ton-hours
Holdover Capacity Required	**20.8 Ton-hours**

Select LHS 21 Ice-Cel unit.

Advantages of Chilled Water

The circulation of chilled water for air conditioning has very definite advantages over and above the refrigeration storage features. In zoned areas, where some areas may be very small or at certain times of the day the load may be very light, conditions are much more easily maintained with this method. A pump and coil for each zone, with the pump controlled by the zone thermostat, will give the desired conditions at any time regardless of the loads on the other parts of the system.

Also, in certain industrial applications, where varying temperatures or humidity conditions may be required at different points, by using the system I have just described with a mixing valve added, the desired conditions are easily attained.

Chilled water may be used also as a circulating medium through forced air wall convectors which use hot water for heating. This isn't the ideal in air conditioning, granted, but it can often be sold where the building construction would not allow ductwork to be installed economically.

Another application which uses the storage principle to good advantage is the small theater, the type which has only two shows nightly, operating for four hours. It has 400 seats.

Using the accepted standard of 20 seats per ton, we have an hourly load of 20 tons or a total over four hours of 80 tons. If we allow a 20-hour operating time of the compressor, we find that a 5-hp. unit, figured on our previous basis of .8 tons/hp., has the required capacity, 4 tons per hour.

The Ice-Cel is determined by the same method used previously. Deducting the four hours of compressor capacity or 16 ton-hours from the over-all load of 80 tons we arrive at the net storage required in the Ice-Cel of 64 ton-hours. We find that a model LHS 21 with 27 ton-hours and a model LHS 31 with 41 ton-hours give the necessary holdover capacity.

Water requirements are also figured as before: 20 tons per hour is the equivalent to 240,000 B.t.u. and this figure, divided by the heat taken up by 1 gal. with an 8° rise, shows 3,000 gals. of water to be circulated per hour. Again, this figure divided by 60 gives us 50 Imp. gal./min.

Funeral homes, with their extremely high peak loads during services, are a natural for the Ice-Cel. Usually, the office, slumber rooms, and reception rooms are cooled by direct expansion, and the chapel by chilled water from an Ice-Cel charged on the off-time of the direct expansion condensing unit.

Motor courts offer an important potential for this type of conditioning. As we all know, they are springing up all over the country and competition is getting keener. The wide-awake operator knows the value of air conditioning and can be sold by the wide-awake dealer. The system is not turned on usually until maybe 5 or 6 o'clock, depending on the occupancy, and is shut off again when the maid changes the linen in the morning. The system is in use during the time when ambients are lowest and consequently the loads are not high, but the benefits to the weary traveler and also to the operator who has the foresight to provide this comfort are tremendous.

Bowling Alleys Have Peak Loads

Bowling alleys are another suggested spot where the Ice-Cel can be used to excellent advantage, either as a system on its own if the alleys are open at night only during the summer or as a booster otherwise.

Church air conditioning, while not receiving too much of a play in Canada as yet, is becoming very popular in the United States, and several articles have been written on the subject. In the great majority of cases the Ice Storage principle is recommended, for the reasons we have seen.

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NEW! SIMPLE, MODERN LINES that look good anywhere.

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Here's a brand-new, handsomely styled air conditioning "plant" that's as easy to operate and control as today's electrical refrigerator.

Every single component has been restudied, in many cases redesigned, and the complete unit tested repeatedly under conditions harsher than it could ever meet in actual service. The result? A quiet, smooth-running packaged unit that will make your Worthington franchise more profitable than ever before. There are sizes for every business, office, or store need. Worthington Corporation, Air Conditioning and Refrigeration Division, Harrison, N.J.

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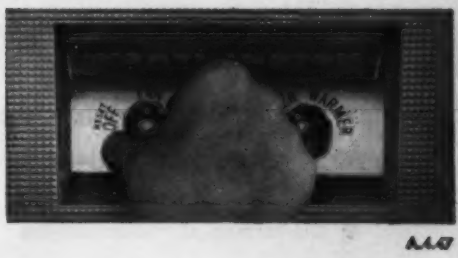

WORTHINGTON

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AIR CONDITIONING & REFRIGERATION News

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No Rust for the Wary

DOGGEDLY, for more than 20 years, AIR CONDITIONING & REFRIGERATION NEWS has promoted the air conditioning business. We've put into it, editorially, far more than we have cashed out of it advertising-wise. Despite many repeated discouragements, we have believed steadfastly in air conditioning's future—and its ultimate destiny as a great American industry.

The above preface is not intended as pat-ourselves-on-the-back accolade. Rather, it points up our continuing responsibility to *chide* and *warn* people in the air conditioning business—when we see trouble ahead for them.

Throughout 1952 and 1953—the years of air conditioning's most spectacular growth—the NEWS published editorial after editorial which was *critical* of the methods pursued by air conditioning neophytes and should-know-betters alike.

Again and again we described probable pitfalls and possible prattfalls. Sorry to say, too many of our dealer-subscribers fell into those bear-traps despite our warnings.

Comes now a moment when we feel duty-bound to shake a warning finger at manufacturers of window-type room coolers.

Why? They've overlooked a safety factor which could give the air conditioning industry its umpteenth "black eye." (Never before have we dealt with an industry which has suffered so many self-imposed setbacks.)

What is that neglected safety factor?

Rust prevention!

All window units project outside the home, or office building, or apartment house in which they are installed. There they are exposed to "the elements" (varying weather—rain, etc.). Furthermore, they create a continual mist of their own. Few mechanisms invented by mankind are subjected to such constant rust-producing conditions.

They'll Do It Every Time . . . . . Jimmy Hatlo

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IT'S JUST TEMPORARY-THAT'S SWELL, ELLY··· THANKS VERY MUCH-OH··DO YOU HAPPEN TO HAVE A SMALLER BUTTON FOR MY SLEEVE? JUST NOTICED ONE MISSING···
HE WOULDN'T SPEND A DIME FOR A TAILOR OR ANYTHING ELSE··· HE THINKS THIS JOINT IS ONE BIG GIVEAWAY PROGRAM·····
HIS OLD LADY PRESSES HIS PANTS ABOUT ONCE EVERY SIX MONTHS··HE HASN'T FIGURED OUT HOW TO GET THAT DONE HERE YET!
HE KNOWS WHO TO GO TO FOR EVERY-THING··NEEDLE AND THREAD··HANGOVER REMEDIES··FREE LUNCH···
I THINK HE SLEEPS ON A DESK NIGHTS·· HE BORROWED MY ELECTRIC SHAVER THIS MORNING···
JIMMY HATLO
CASING THE OFFICE MOOCH RUNNING TRUE TO FORM···
THANX AND A TIP OF THE HAT TO EUNICE BOTTOSTO, 4426 SOUTH 22ND ST., OMAHA, NEB.
10-15

Some rainy day a heavy hunk of overhanging window air conditioner is going to rust out, drop down, and bop an innocent pedestrian on his head.

Then there will be hell to pay all around the nation. City Councils will go into action, municipal codes will be revised, there'll be a great hue and cry against window units, etc., etc., etc.

Believe us, a great many air conditioning dealers the writer has interviewed in recent months are worried about this problem.

The more conscientious among them—stung by frequent service complaints—already are bracing up fragile and tenuous installations. At their own expense.

In the future they want better protection by manufacturers against this hazard.

Here's an idea we throw out "for free" to engineers, designers, and production chiefs:

Why not produce porcelain-enameled window room coolers? That would solve the rust problem once and for all.

Furthermore (and this should interest sales managers, market planners, advertising men, distributors, and dealers) porcelain enameling could introduce an infinite variety of color-schemes to attract the decorator-conscious housewife.

Nearly every dealer we interview tells us that the biggest single obstacle to home room cooler sales is the woman in the case. She objects to the appearance of most window units. Q.E.D.

AIR CONDITIONING & REFRIGERATION NEWS, let us repeat, has made a big investment in the future of the air conditioning business. Long-term, therefore, we hope it will go in the right direction. Our business can be damaged, just as yours can, if faulty installations backfire.

Production-wise it might be difficult and expensive to adopt the suggestion contained in this editorial. (Parenthetically, it should be noted, no producers of porcelain enamel advertise in our publication.)

But, in terms of allowing air conditioning to achieve its overdue potential, we recommend rust-prevention, plus color-scheming (through porcelain enameling) to the serious attention of all manufacturers of air conditioners.

Quotable Quotes

A country can become a hypochondriac just as a person can. A country can fall into the habit of popping a fever thermometer into its mouth to take its economic temperature every hour on the hour, listening anxiously to its every heartbeat, and forever psychoanalyzing itself. Frankly, we've had a bit too much of this lately.—DAVID E. LILIENTHAL.

Less than one half of 1% of the inhabitants of the U. S. are professionally engaged in scientific research, the technological application of its results, and the teaching of science.—*Science Digest.*

The degree to which aggressiveness in retail sales programs and initiative in salesmen has disappeared in the past 12 years is amazing. Ask yourself this question: How long has it been since you have been asked to buy an automobile? A refrigerator? New clothes?

What would happen if 100,000 salesmen began asking people, individually, to buy things? There would be no danger of spendable income staying frozen, and there would be not even so much as a dip in the economy.—PAUL G. HOFFMAN.

The conversation of authors is not so good as might be imagined, but such as it is it is better than any other.—WILLIAM HAZLITT.

A good basic education, like the pursuit of beauty, cannot be calibrated on some ordinary measuring stick. It can be delicious fun; it should inspire one never to stop learning. It imparts to life a lift, a zest, a resplendency, if you will, which never ceases, but shall remain "a friend to man."—MARTHA JANE BRUNSON.

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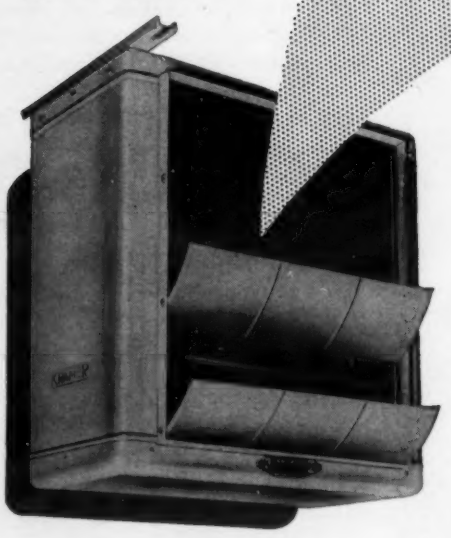

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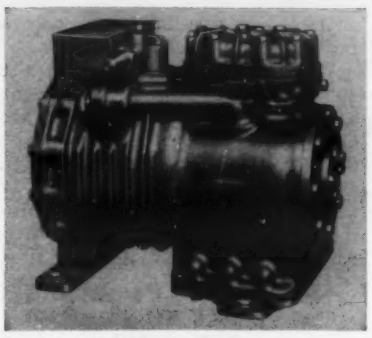

NEW 'COPELAMETIC' motor-compressor with suction cooling.

'Copelametic' Offered With Suction Cooling

SIDNEY, Ohio—Several sizes of "Copelametic" motor-compressors are now being offered with suction cooling, Copeland Refrigeration Corp. reports. These range up through 3 hp.

"In these models," the company said, "the gas cools the motor by passing through a chamber around it. The 'Freon' does not come in contact with the oil at any time. Through this design the motors will not require cooling by water or air.

"Just as in all Copelametic units, the motor and compressor are completely accessible for service on the spot if ever required. There are no belts or seals in this direct-drive accessible hermetic. No manual lubrication is needed."

Service Parts Completes Warehouse Expansion

MELROSE PARK, Ill. — Completion of a warehouse expansion program that gives the company 30,000 sq. ft. of usable storage space was announced recently by Pat Ravanesi, manager of Service Parts Co. here.

Ravanesi said that the added space was needed to accommodate bulkier equipment after the company had been franchised to represent the Brunner Mfg. Co. and the Heil Co.

Service Parts is now exclusive Chicago area distributor for the complete Brunner condensing unit line from ¼ hp. to 75 hp. and air conditioners to 20 tons capacity. It also represents the Heil line of furnaces, boilers, and conversion units.

Service Parts has also taken advantage of its location on U. S. Highway 20 to erect jumbo outdoor signs 59 ft. long by 19 ft. high facing both east and west. These are lighted and carry the monograms of Brunner, Kramer-Trenton, and Heil.

As the highway runs between Chicago and a newly developed industrial area and 57,000 persons daily pass by the company's location, Ravanesi believes that the signs familiarizing the consumer with these trade names will aid the contractor.

Mellentin Joins Revco as Field Service Manager

A. W. Mellentin

DEERFIELD, Mich. — A. W. Mellentin, who for the past 20 years had been with Hotpoint in Chicago, has resigned to join Revco, Inc., according to Harold Fye, personnel manager for the freezer company.

As field service manager for Revco, Mellentin will cope with field service problems and arrange service schools for distributor service personnel.

At Hotpoint he had served as technical specialist and for 10 years conducted liaison with the firm's suppliers as consultant on home laundry equipment.

He replaces Robert O. Blaine, former Revco field service manager, who has been promoted to the company's sales department.

Firm Cools New Home

DALLAS — The spacious new home of Mason Awning Co., 601 Hall, was formally opened recently. Year-round air conditioning equipment was installed by Frymire Engineering Co., featuring Carrier products.

Kinetic Distributes New File on Air Conditioning

WILMINGTON, Del. — Air conditioning of shopping centers, residences, printing plants, industrial buildings, and libraries, and use of refrigeration in modern food warehouses are discussed in the "1953 Air Conditioning Reference File" distributed recently by the Du Pont Co.'s "Kinetic" Chemicals Div.

The file, fifth in an annual service series begun in 1949, includes short articles by Geoffrey Baker and Bruno Funaro of Howard T. Fisher & Associates, New York City; C. Warren Cheatham, engineering consultant of Alabama Power Co., Birmingham; James Mongitore and Fred L. Moesel, New York City consulting engineers; A. B. Waterbury, assistant chief engineer, Walter Kidde Constructors, Inc., New York City; and L. R. St. Onge, president of V. C. Patterson & Associates, York, Pa.

Farr Appoints H. M. Robson Central Div. Sales Manager

LOS ANGELES—Farr Co., manufacturer of air filters and air filtration equipment, has announced the appointment of Harold M. Robson as central division sales manager.

He will supervise representative sales from Farr's central division office in Chicago.

HAROLD STAHL (l.) of Rochester Products receives news of his appointment as head of the new Detroit regional sales office from Sales Manager F. Dean Lowell. This is the first office of this kind to be opened by Rochester.

Rochester Products Opens Regional Office In Detroit

ROCHESTER, N. Y.—To provide better service for Michigan area customers, Rochester Products, Div. of General Motors, is opening a regional sales office in Detroit, reports Sales Manager F. Dean Lowell.

The office, first of its kind to be established by Rochester Products, will handle both welded and brazed GM steel tubing.

Located in the Melwood building at 8316 North Woodward Ave., the new office will be headed by Harold Stahl, sales engineer, according to the firm.

Brundage Heads New Fresno Office of Thermal Products

FRESNO, Calif.—A. H. Brundage has been appointed manager of the new Fresno office of Thermal Products, Inc., parts and supplies wholesaler, it was reported recently by Peter H. Askew of the company.

Brundage is being assisted by Robert Schnieder. A veteran in the business, Brundage was formerly in charge of the refrigeration department of Devlin-Drew Co. of Fresno.

Formal opening of the office was well attended by both the trade and suppliers, according to Askew. He said the office is carrying "quite a substantial stock of material" and termed it "one of the most modern wholesale houses on the coast."

Bell & Gossett Elects Marlow, Boone Directors

MORTON GROVE, Ill. — Shareholders of Bell & Gossett Co. at their annual meeting elected two new directors, increasing the board from five to seven members, R. E. Moore, executive vice president, announced recently.

New directors are A. S. Marlow, Jr. and W. A. Boone, both executives in the company's sales department. At the board of directors meeting Marlow was elected a vice president.

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Model 70-N

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Simple and efficient—these Solenoid refrigerant valves are all-industry favorites

At left, two heavy-duty "work-horse" type solenoids of large capacity for large air-conditioning units, truck or railroad applications. Lift 140 lbs. to 160 lbs. (260 lbs. on 32V DC). Top capacity 70-NAX, 20 tons; 70N, 53 tons.

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Refrigeration Problems

and their solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

Cold Weather Problems (5)

The question which set off this series of articles, which started in the issue of March 1, was "What should be the lowest air temperatures surrounding domestic and commercial compressors?" In that issue, it was stated that Cold Weather Problems could be divided into two classes: one, those problems that resulted from the refrigerator or refrigerated fixture being located in a place in which the temperature was but little above the temperature of the air inside the fixture; and, two, those problems resulting from the condensing unit being in a cold location.

In the preceding articles, the cold location of the refrigerator was discussed first, for an understanding of this phase of cold location is helpful and even essential to an understanding of the problems resulting from a cold location of the condensing unit. Although the cause is the same, the effects of a cold location of the refrigerator are often much different.

The problems resulting from a cold location of the refrigerator are more apt to be concerned with the appearance or quality of the food or other refrigerated product, although in some instances there may be damage to the evaporator.

If the condensing unit is located in a cold place, there will probably be operating trouble also, affecting the appearance or quality of the foods or other refrigerated product, but in addition, the compressor is apt to be damaged. Therefore, the problems resulting from a cold location of the condensing unit are often much more severe than those resulting from a cold location of the refrigerator.

Let us take, for example, an air-cooled condensing unit connected to a walk-in cooler in a food market. Fresh and cured meats, eggs, milk, fruit, and vegetables are kept in the cooler, at an average temperature of 38°. The refrigerant is "Freon-12"; control is by a low-pressure control set at 37 p.s.i.g. cut-in, and 22 p.s.i.g. cut-out, and the average running suction pressure is about 25 p.s.i.g. Refrigerant control is by a thermostatic expansion valve.

The cooler is on the first floor and the condensing unit is in a basement room separate from the furnace room. This room is unheated and is used to store discarded crates, cartons, and odds-and-ends. There are large double doors in the rear of the basement, for a truck is kept overnight and weekends. The doors are loosely fitted, and are open much of the time during the day.

In warm weather, the temperature around the condensing unit runs from 75° to 80° during the day, somewhat cooler at night. Therefore, the normal summer operating head pressure is about 145 p.s.i.g. The condensing unit runs about one-half to two-thirds of the time, and little trouble is experienced. Foods stored in the cooler keep well and have a good salable appearance.

In the winter, the temperature in this basement room is commonly about 30° to 50°, but quite often it gets down to 10° to 20°.

SHORT CYCLING IN 40° BASEMENT

What are the operating conditions when the temperature in the basement in which the condensing unit is located is 40°?

At that temperature, the head pressure while the unit is running is about 77 p.s.i.g. With such a low head pressure, the capacity of the condensing unit is about 25 or 30% greater than in the summer, when the room is 80°. The capacity of the evaporator has not changed though, so the capacities of the condensing unit and the evaporator are out of balance.

Consequently, the condensing unit pulls the evaporator pressure down quickly, and the running time is much less. If the evaporator is the gravity circulation type, the evaporator may not be cold enough of the time to force adequate air circulation. There may be some complaint of slimy, moldy meat.

Even with a blower type evaporator, there may be some short cycling, and it may be found necessary to lengthen the differential of the low pressure control to maintain a long enough operating cycle to maintain proper temperatures in the cooler.

In such a condition, the wider differential should be obtained by lowering the cut-out point of the low pressure control and leaving the cut-in point as is, rather than to raise the cut-in point.

MAY HAVE TX VALVE TROUBLE

In addition, the thermostatic expansion valve may start giving some trouble. It may not feed the evaporator fully. This will aggravate the short cycling. Moreover, with the evaporator running only partially active, ice and frost may build up and some defrosting trouble may be experienced.

Why should the TX valve give trouble?

The amount of refrigerant that the orifice in an expansion valve will pass depends upon the pressure drop across the orifice; that is, it depends upon how much greater the high pressure ahead of the valve is than the low pressure beyond the valve. The greater the pressure drop across the valve and the greater the amount of liquid flow through the valve, the greater is the capacity of the valve.

The pressure in the blower coil will not change much, for it depends mostly on the air temperature in the cooler. So if the head pressure becomes lower, the pressure drop across the valve becomes less and so does the capacity of the valve.

We have said that in the summer the head pressure will be about 145 p.s.i.g. There will be some pressure drop through the liquid line due to the line itself, driers, strainers, etc. If we allow 5 p.s.i.g. for this (it may be even more), the liquid pressure at the TX valve will be 140 p.s.i.g. With an evaporator pressure of 25 p.s.i.g., the pressure drop across the TX valve is 115 p.s.i.g.

We have also said that in the 40° basement in the winter, the head pressure is 77 p.s.i.g. Again allowing 5 p.s.i.g. pressure drop through the liquid line, the liquid arrives at the TX valve at 72 p.s.i.g. With a 25 p.s.i.g. evaporator pressure, the pressure drop across the TX valve is 47 p.s.i.g.

MAXIMUM CAPACITY OF VALVE MAY BE REDUCED ONE HALF

Thus, in the winter, the pressure drop across the TX valve is 47 p.s.i.g. as compared to 115 p.s.i.g. in the summer. So the pressure drop across the TX valve is less than one half in the winter of what it was in the summer.

This does not mean that the capacity of the TX valve is cut to less than one half. If the TX valve was not too small to start with, it was not operating fully open in the summer. But in the winter, the TX valve is going to have to open much wider than in the summer, despite the higher net refrigerating effect of the cooler liquid refrigerant in the winter.

If it is a bit undersize, it may not be able to pass enough liquid, even if it is wide open; so the evaporator may operate not fully frosted. This will further aggravate the tendency to short cycle.

HUMIDITY IN COOLER MAY BE TOO LOW

A partially active evaporator means that the capacity of the evaporator drops off. To balance itself to this reduced evaporator capacity, the condensing unit must drop to a lower suction pressure in order to reduce its capacity to match that of the evaporator.

With the lower suction pressure, the active part of the evaporator will be colder. A colder evaporator condenses more moisture from the air passing over the evaporator, and this reduces the dewpoint and relative humidity in the cooler.

This may cause darkening and drying of the meat, causing complaint from the customer, and service trouble for the service engineer called by the customer to correct it.

So an "ambient" or room temperature of the air around the air-cooled condensing unit of 40°, is very liable to cause some complaints about the appearance of the meat, and about the machine "starting and stopping" too often.

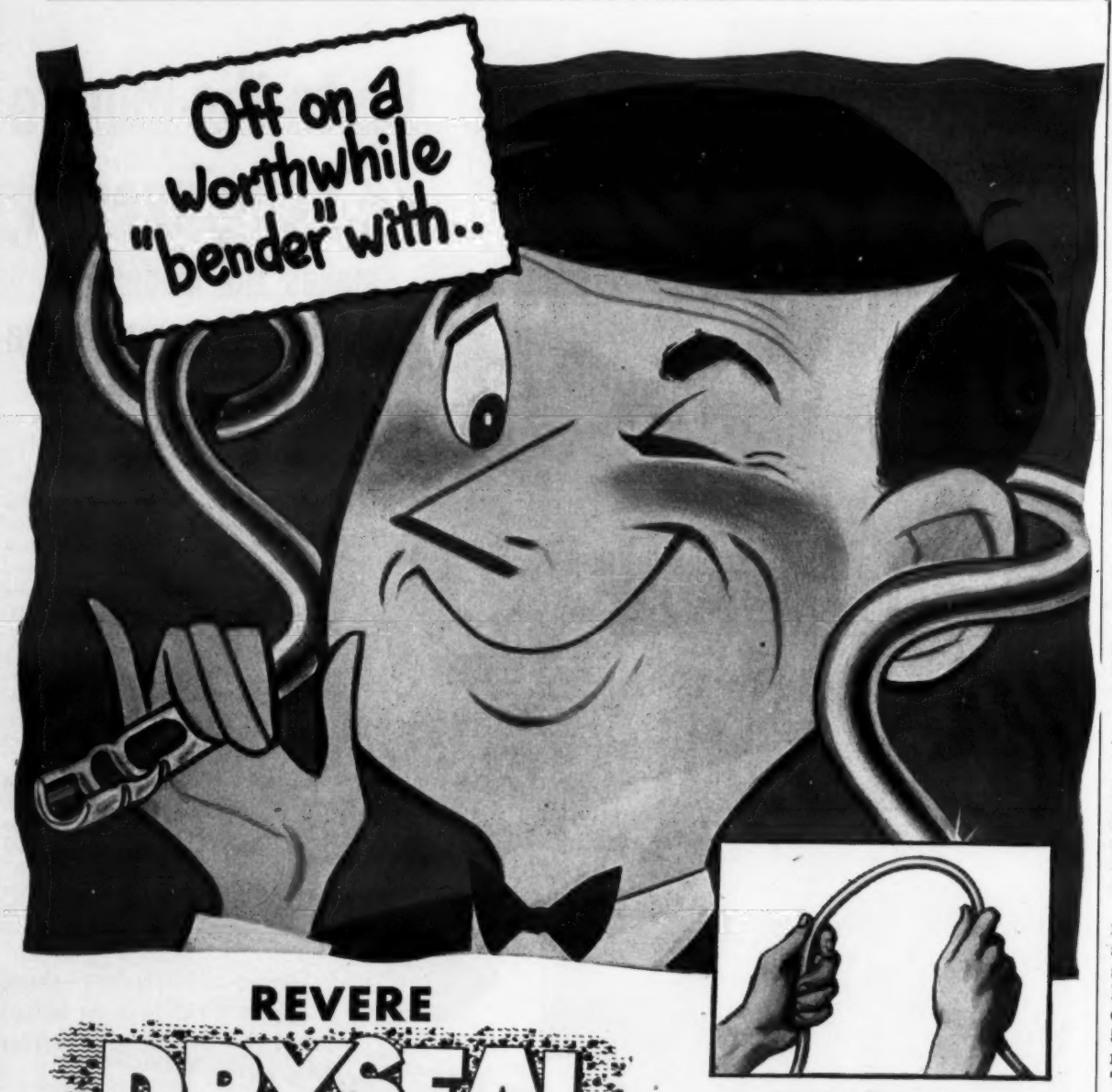
WATER-COOLED UNIT LESS SUSCEPTIBLE

With the water-cooled unit, there may be little adverse effect of operating in a 40° ambient, if the water control valve is properly set, and if it accurately maintains a fairly constant head pressure summer or winter.

We can conclude then that with a 38° refrigerator and a 25° evaporator or thereabouts, there are apt to be troubles if an air-cooled condensing unit is required to operate on an ambient temperature of as low as 40°. A 50° ambient would be better, but operating conditions would be still better if the ambient were 60° or more, up to about normal, comfortable room temperatures of 70° to 80°.

Next, we shall see what effect a 30° ambient would have.

(To Be Continued)



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New Jordon Plant Is Geared For Production of Expanded Line

(Concluded from Page 1)

Harry Fogel is executive vice president of the company.

Participating in the ceremonies, in addition to the company executives, will be Walter P. Miller, Jr., president of the Chamber of Commerce of Greater Philadelphia; Thomas E. Willis, executive secretary of the Chamber of Commerce of Northeast Philadelphia, and a representative of the City of Philadelphia.

Plans for Plant Tour

Following the ceremonies, visitors will be given a guided tour of the huge plant, all located on one floor.

The plant, completed 10 years after Frank and Harry (who have been in the refrigeration business all of their lives) started business in Philadelphia as Jordon Refrigerator Co. at Broad and Race Sts., is over 450 ft. long and is located along the main line of the Reading Railroad. The plant has its own private siding large enough to hold five freight cars.

The plant is designed for mass production and will enable Jordon to double its productive capacity immediately. Air conditioned offices and three research laboratories are located at one corner of the building.

The plant, located on 20 acres of land, is the first of a half dozen similar plants to be constructed by Jordon at that location as the demand for its products grows.

'53 Volume $15 Million

During its first year of business, Jordon did a total gross business of $200,000. In 1953, its total volume topped $15,000,000.

The new plant, comprising some 150,000 sq. ft. of floor space, will enable Jordon to double its production almost immediately, this acceleration being due not only to the new equipment added, and to the layout of the plant for a minimum waste of footsteps, but to the fact that the entire plant is on one floor and that the multiple production lines will run parallel to each other, but will never conflict.

The 450-ft.-long building is located on a plot of 20 acres and is adjacent to the main line of the Reading Railroad, including a private siding for carloading.

Frank Fogel, president, said the building is actually the first of similar buildings which can be added as the need develops.

"We have planned this specifically to allow for almost indefinite expansion," he said, "and yet to provide parking space for our employes and adequate landscaping."

The large plant is laid out in the form of a large rectangle, with a large section air conditioned for offices, engineering, and research jutting out of one end.

Trucks Pull Into Plant

Truck delivery and shipment is made from the long side of the building, directly below the office section. Doors 14 ft. high and 12 ft. wide permit trucks to pull in directly below the overhead crane bay of the building. This permits the heavy sheets of steel to be transported to storage with a minimum of time and effort.

Doors to the railroad siding are located along the width of the building so that there is no confusion of traffic between truck and rail delivery and shipment. The direction of traffic is so arranged that the arrival of materials can never run headlong into the end of the crating area which leads directly to shipping platforms.

The huge steel shears, which cut the original material into the desired sizes for the many Jordon commercial and domestic models, is situated so that the overhead crane (which runs the length of the building) can deliver the sheet steel from the storage area in very little time.

For Faster Production

New types of 20-ft. power brakes for piercing flat sheets of metal in one operation, preparatory to transfer to the tangent bender which forms the metal for the proper appliance, have been installed to speed up production of this step considerably. The cost of the new equipment is over $250,000.

The production line then leads to the tangent bending department, and the formed sheets of metal then pass on either the roller type conveyors or along the overhead conveyor between two automatic welding machines which weld the outside shells for the Jordon appliances at terrific speeds.

The shells move into a special overhead conveyor to what is considered the world's newest refrigerator painting and washing department. The shells move through the five stage washer, dry-off oven, spray booths, and baking ovens via the overhead conveyor and with absolutely no lost motion.

The Jordon painting department, which comprises about 10,000 sq. ft. of floor space, is completely pressurized to keep dirt out.

The paint shop, which cost $300,000, is designed so that loading and unloading operations take place outside of the paint shop. The conveyor carrying the shells enters the paint shop through the washer, leaves the paint shop through the oven and lands directly at the beginning of the assembly lines where units, insulation, and all hardware are installed step-by-step.

Paint spraying is handled by specialists trained by Jordon, and all ovens are equipped with air seal vestibules to keep the heat inside the ovens.

Jordon has installed a special 350-hp. boiler to generate steam for the paint department exclusively. The balance of the building will be heated by means of direct oil-fired space heaters suspended from the ceiling, to allow more floor space for production and to provide even heating throughout the plant.

Testing at Each Step

The assembly lines themselves include a heavy duty feed rail trolley duct so that refrigerators and freezers are tested at each step as they move along to the end of the assembly lines. After final tests, the appliances are crated and moved to shipping.

The shipping department, located along the outer perimeter of the building, is set up in the shape of a giant "L." Railroad facilities are located along one leg and truck loading along the other. Receiving is on the opposite end of the building.

During the daytime shifts, illumination will be natural for the most part through virtually building-high windows. Slim line fluorescent lighting will provide soft illumination throughout the plant and the office section.

Since research is being emphasized by Jordon in its new plant, three separate laboratories have been built. One will be used for temperature experiments, the second for humidity tests, and the third for general research.

Some of the New Products Which Jordon Is Marketing In Its Expanded Program

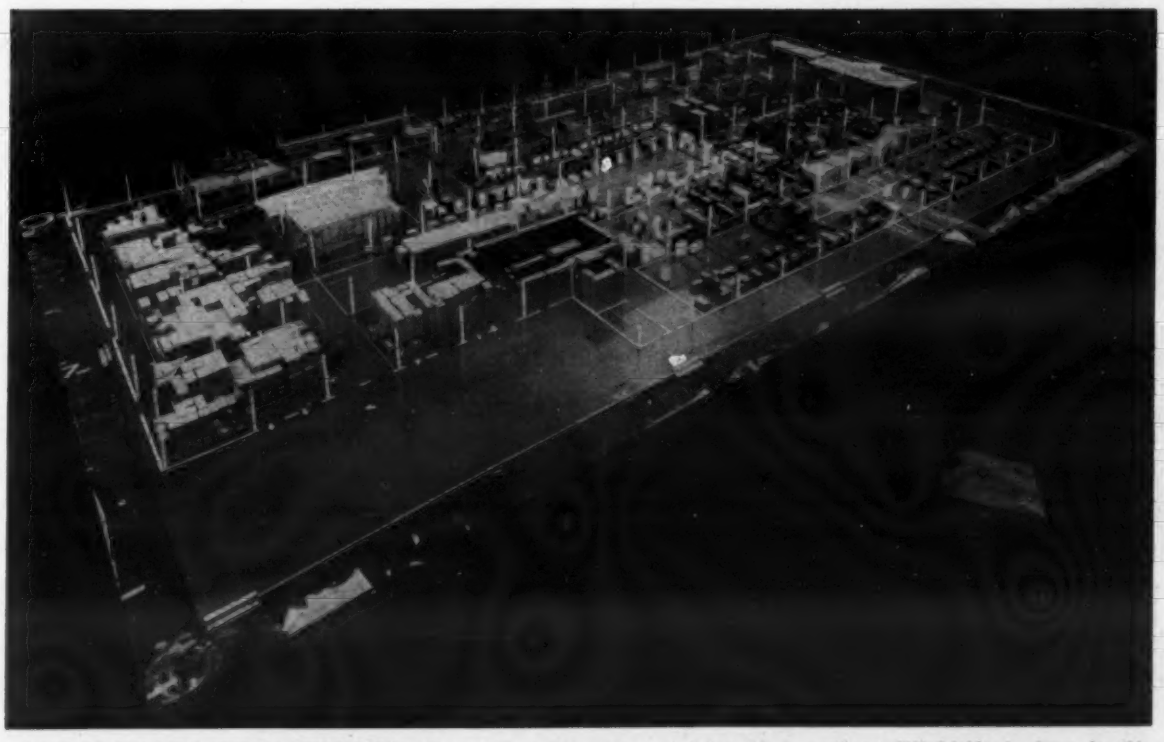
NEW "DUPLEX" MODEL, COMBINATION FREEZER-REFRIGERATOR, will be merchandised by Jordon as the "complete food storage appliance." There are separate controls for the refrigerator and freezer sections. Model is sliding out one of the vegetable containers in the upper "normal" refrigerator section. Other features include storage space in both doors, and a dry storage bin in the bottom.

UPRIGHT HOME FREEZER FOR THE SMALL HOME OR APARTMENT is the "Little Lady" model J-12, which has a capacity of more than 400 lbs. of frozen foods. It has three freezer plate shelves and coils in the ceiling and walls, with liner in smudge resistant aluminum finish. It is 60 in. high, 28 in. wide, and 28½ in. deep.

"BAKER'S FREEZER" WITH AUTOMATIC DEFROSTING is this model BF-33. No manual attention is required for the defrosting process, which is said to be rapid enough to permit continuous use. Entire refrigeration and defrost system is built into the ceiling where it does not detract from usable space. Forced air cooling maintains even temperature throughout the freezer.

"HOSTESS" UPRIGHT HOME FREEZER WITH SELF-ALIGNING "Seal-O-Matic" door has embossed aluminum interior with practically all seams and corners eliminated. Every shelf is constructed with freezer coils. Juice shelf at the top is designed for storage of frozen juices and small packages at a point where they are readily accessible.

Scale Model Reveals Plan for Production Flow



LAYOUT OF THE NEW JORDON REFRIGERATOR CO. PLANT at Rhawn St. and Tabor Rd. in northeast Philadelphia is shown by this scale model. Air conditioned offices are on the near side of this model layout. Arrows indicate movement of shipments and deliveries, with raw material coming in on platforms directly below the offices and distributed to stockrooms. After a smooth flow in an S-shape, the finished product passes through washing and painting on the far side, further testing, crating, and shipping.

New Conditioners--

(Concluded from Page 1)

blends with any surrroundings. The outer cabinet is completely insulated from inner structural iron framework. The entire unit is acoustically and thermally insulated for noiseless operation and greatest cooling efficiency.

Operation of the Jordon units is completely automatic. A centrifugal type fan has oilless bearings for trouble-free operation and is cushion mounted for silent operation.

A feature of the Jordon unit is low speed condensing unit. Every unit carries a full five-year warranty on the compressor, and a one year warranty covering replacement of any part found defective in material or workmanship.

The model JAC-200, the two-ton unit, has a total cooling capacity B.t.u. per hour of 24,500; the JAC-300 has 36,100; JAC-500, 61,000; JAC-750, 93,000; and JAC-1000, 121,000.

The model JAC-200 stands 52½ in. high, 35¼ in. wide, and is 25¾ in. from back to front. The JAC-300 stands 55⅝ in. high, is 35¼ in. wide, and is also 24 in. from back to front. Other sizes are proportionally larger.

Dealer net prices, f.o.b. factory, are JAC-200, $750; JAC-300, $850; JAC-500, $1,098; JAC-750, $1,498; JAC-1000, $2,050.

ONE OF THE MODELS IN THE NEW line of package store air conditioners which Jordon is introducing.

The most advanced line in JORDON

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Here, on a 20 acre site in the heart of Delaware Val
new home of Jordon . . . marking a new milestone of growth
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engineering skill of our people creating every Jordon produc
masterpiece . . . and we are especially proud that our new
proof that America is truly a land of opportunity . . . and that
can still make their dreams come true.

J-22 "LADY JORDON" GOLD-TONE FOOD FREEZER with exclusive Seal-O-Matic Door. Holds over 700 lbs. frozen foods!

J-12 "LITTLE LADY" APARTMENT-SIZE FOOD FREEZER. Holds 400 lbs. frozen foods.

THE EXCITING, HISTORY-MAKING "DUPLEX" FOR TOTAL FOOD STORAGE!

Full *REFRIGERATOR*
Over 8 cu. ft.
(Self-defrosting)

Full *FREEZER*
Over 10 1/2 cu. ft.
(with the exclusive Seal-O-Matic Door)

Model D-20

* Planned for total food storage!

* Perfect size for the kitchen—41" wide x 30¼" deep.

* Beautiful Gold-Tone styling with Arctic Blue interior.

* Separate controls for refrigerator and freezer.

KITCHEN REFRIGERATOR-FREEZER COMBINATION

J-16 "JORDON HOSTESS" GOLD-TONE UPRIGHT FOOD FREEZER with exclusive Seal-O-Matic Door. Holds over 525 lbs. of frozen foods.

CF-30 DELUXE UPRIGHT FREEZER with exclusive Seal-O-Matic Door. Holds approximately 1000 lbs. of frozen foods.

TC-8 Chest-type Food Freezer. Ideal size for small families, apartment use. Models TC-12, TC-15 and TC-21 also available.

ROOM AIR CONDITIONER. J-50 . . . ½ h.p. J-75 . . . ¾ h.p. J-100 . . . 1 h.p. Extends less than 3" into room!

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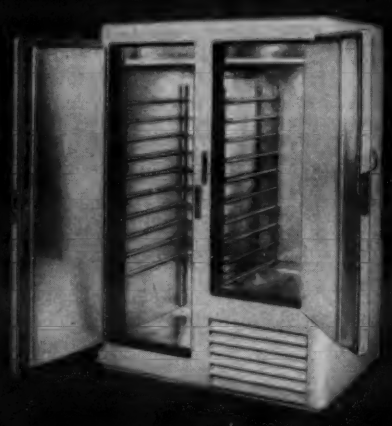
B-88 FLAT TOP BEVERAGE COOLER with all-stainless steel work top, exclusive "Controlled-Flo" Cool Air Circulator. 7'4" Also 5 ft. model.

FV-4 FULL VISION DISPLAY CASE. 4 ft. x 30 in. with hinged door. Also in 5 ft. and 6 ft. models. All available with sliding glass doors.

S-14/6 TU-TEMP REFRIGERATOR. 14 cu. ft. refrigerator plus 6 cu. ft. freezer. One condensing unit, one adjustable control. Also white enamel exterior.



BF-33 BAKER'S FREEZER with automatic defrost for freezing cake and pastry, baked or unbaked.

M-17 FROZEN FOOD MERCHANDISER. 17 cu. ft. with sliding doors. Also available in 26 cu. ft. model.

S-4½ WALL CASE with sliding doors. White enamel or stainless steel with glass or solid doors.

CF-42 DELUXE UPRIGHT FREEZER—the most beautiful commercial freezer on the market! Exclusive Seal-O-Matic Door!

S60JFC REACH-IN REFRIGERATOR. 60 cu. ft. with Jordon self-contained unit that eliminates expensive installation. Two Jord-O-Matic Blower Coils for maximum high-humidity refrigeration.

S30JFC REACH-IN REFRIGERATOR with solid doors. 30 cu. ft. of high-humidity refrigeration. Exclusive Jord-O-Matic Blower Coil.

S40JFC REACH-IN REFRIGERATOR. 40 cu. ft. with 7 adjustable heavy-duty wire shelves. Exclusive Jord-O-Matic Blower Coil.

20/20 COMBINATION REFRIGERATOR-FREEZER. Upright, commercial size. Each section has its own controls. Dry storage bin at bottom.

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Plant Manager

JOHN LICINIT
Chief Design Engineer

JOSEPH DI TULLIO
Chief Refrigeration Engineer

PHILIP ROBINS
Production Manager

E. A. TERHUNE
Charge of Sales Commercial Division

B. W. GOODMAN
Executive Assistant Domestic Division

PHILIP BENN
Assistant Sales Manager

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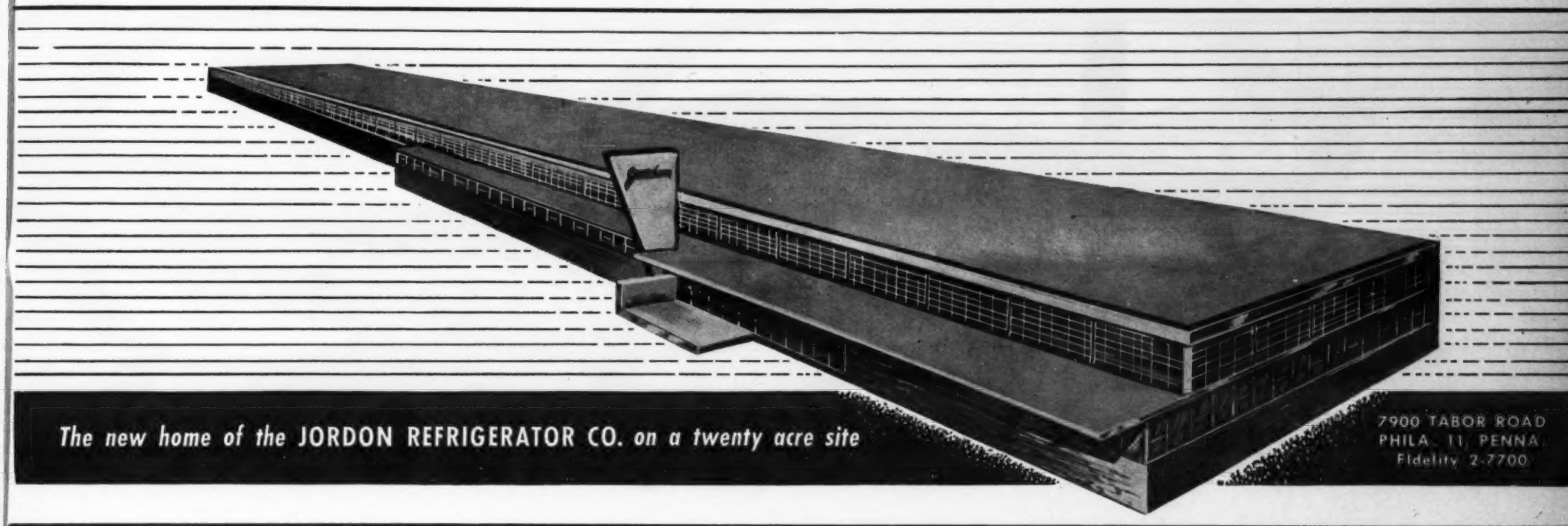

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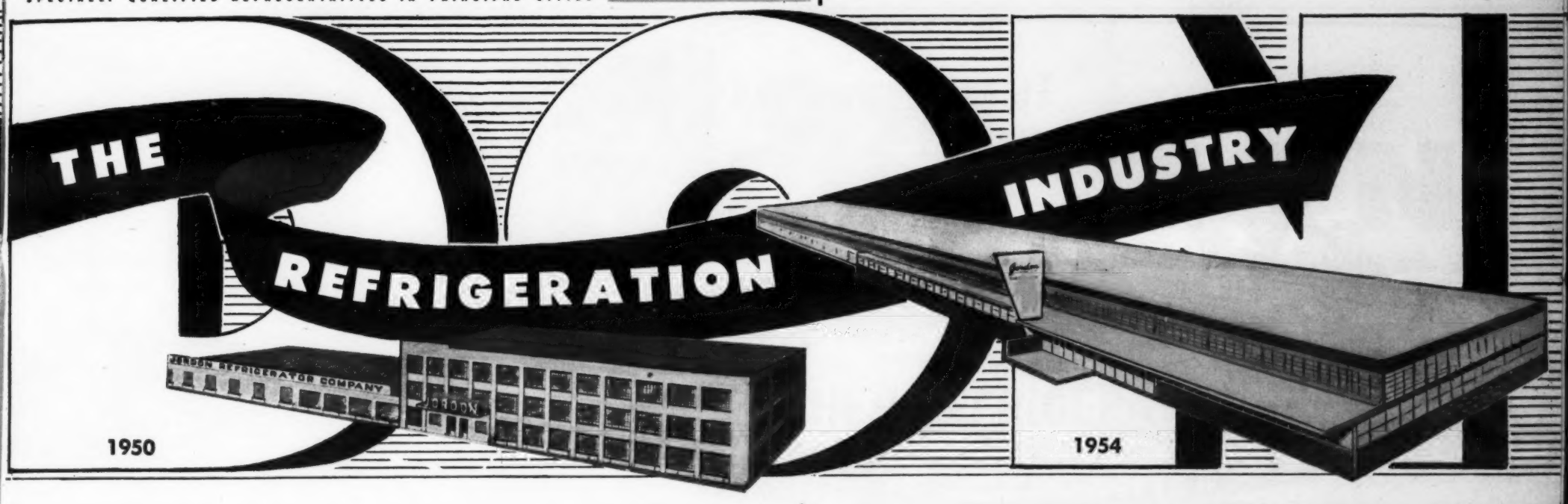
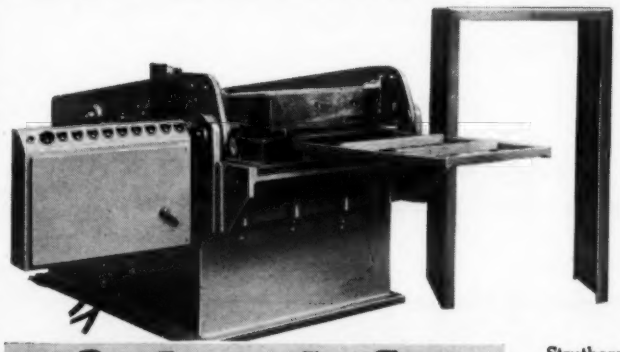
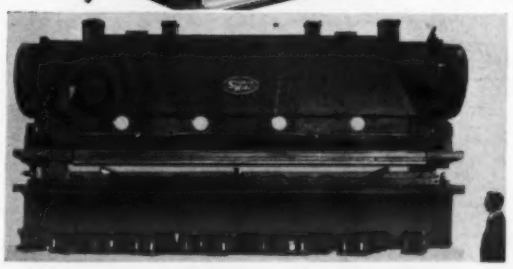


JORDON cuts production costs with STRUTHERS WELLS EQUIPMENT



...produces this upright Freezer Shell from flat sheet sheared to size

in just 4 operations



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Machinery Division

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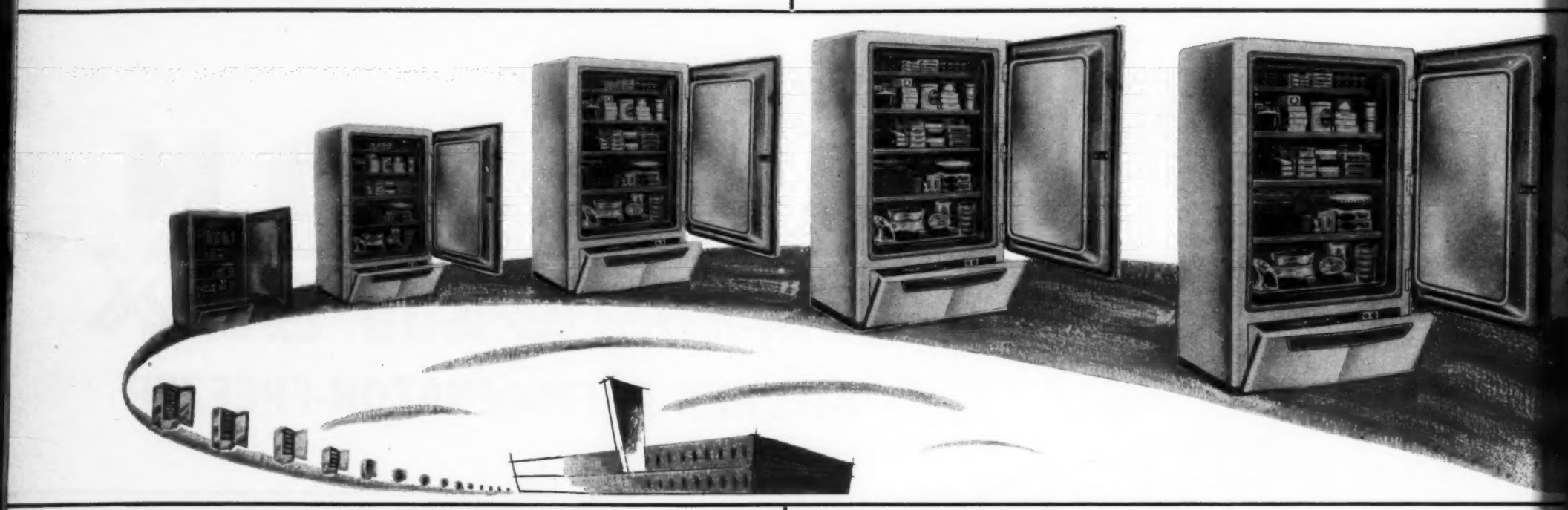

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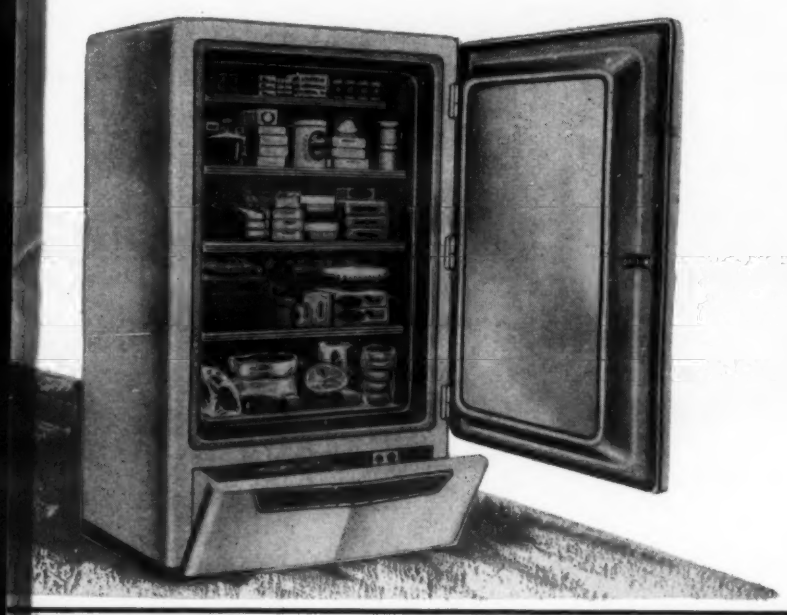

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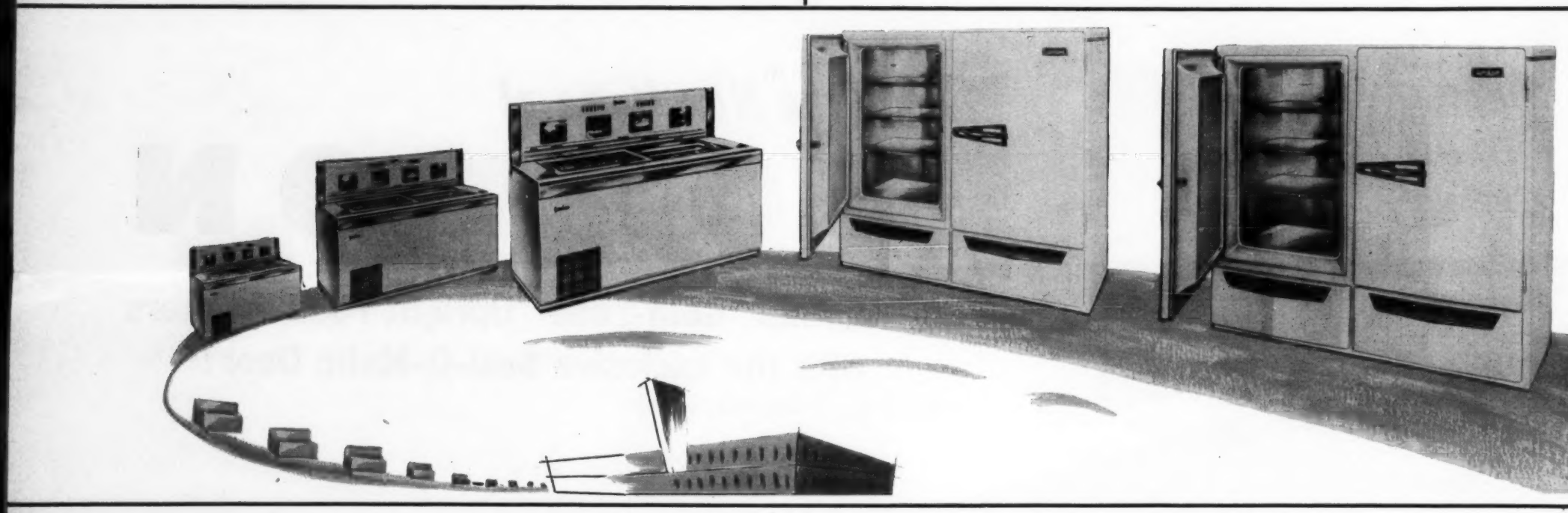

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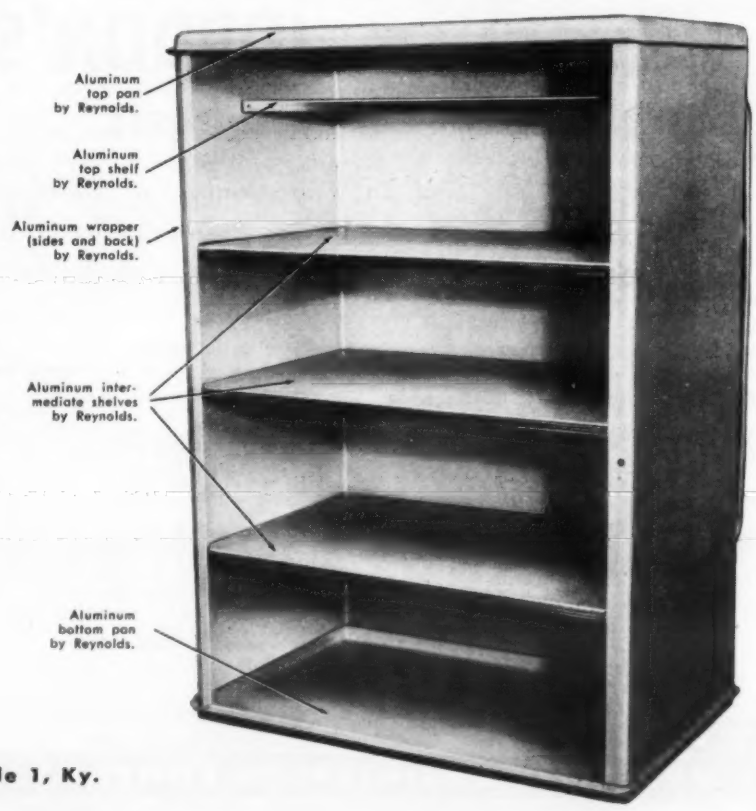
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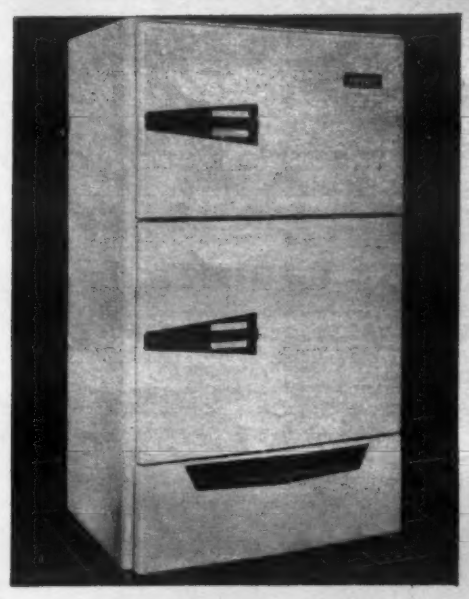

JORDON MODEL D-20 "DUPLEX"
TWO TEMPERATURE
REFRIGERATOR-FREEZER

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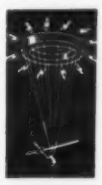

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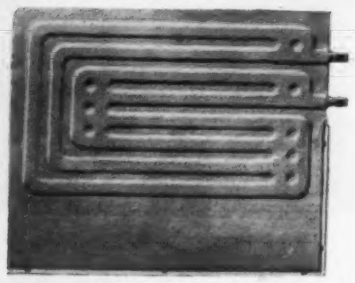
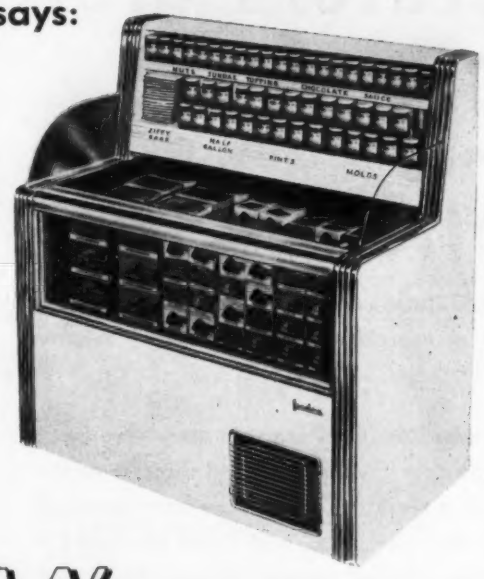
A Salute to JORDON

from the little Dean, who says:
"GOOD PLATES in a GOOD CABINET" is a FORMULA for SUCCESS!





DEAN PRODUCTS, INC.
1042 Dean Street Brooklyn 38, N. Y.
STerling 9-5400

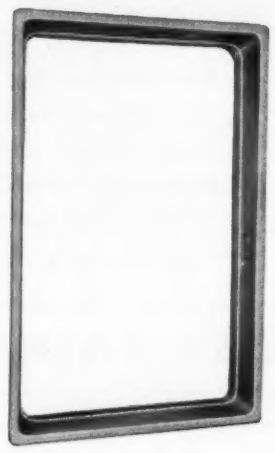
MARINO ELECTRIC COMPANY
Authorized Representatives for
WAGNER ELECTRIC CORPORATION

•

SALES — WARRANTY SERVICE — PARTS

COMPLETE FACILITIES FOR THE MAINTENANCE, SERVICING, AND REBUILDING OF ALL MAKES OF ELECTRIC MOTORS AND CONTROLS.

1132-34 CALLOWHILL ST. PHILA. 23, PA. MA. 7-0289-90, EXT. 1

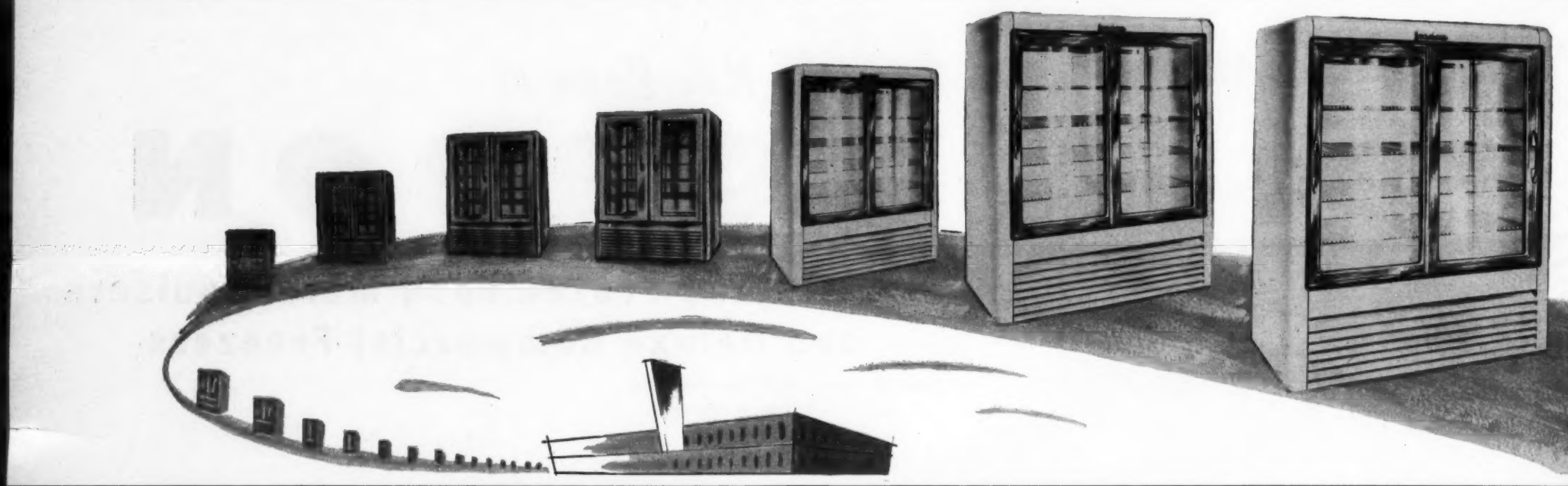


LEADERS IN PLASTICS

The Auburn Button Works produces the highest grade high impact polystyrene sheets from which the interior lining and accessories for Jordon refrigerators and freezers are formed.

For 78 years the company has pioneered the development of better plastic products of all types for America's largest manufacturers.

AUBURN BUTTON WORKS, INC.
ESTABLISHED 1876 AUBURN, N. Y.



CONGRATULATIONS, JORDON

on your great step forward!
May the years ahead bring ever-greater growth and continued success.

• • •

WEST PHILA. ELECTRIC SUPPLY

Wholesale Distributors

SUPPLIES — LIGHTING FIXTURES — APPLIANCES

6018-20 MARKET STREET
PHILADELPHIA 39, PA. GRanite 4-9200

HAIL, JORDON!

Our pleasure in your progress is the greater because of the part we have played in your steady expansion.

• • • •

POTTS-FARRINGTON CO.
PHILADELPHIA, PENNA.

Distributors: STEEL, ALUMINUM, COPPER AND ZINC PRODUCTS.
Specialists in Roofing and Building Materials
Nails of all kinds for all purposes.

We are proud to have been privileged to participate in Jordon's expansion.

•

KATTELMAN & CO.
INSURANCE

"Serving the Leaders in Commerce and Industry"

LEWIS TOWER BUILDING PHILADELPHIA

WE SALUTE YOU, JORDON...

on your outstanding progress! We are proud to have contributed to your growth by helping you maintain your high standards with components from our own quality line.

Advance SPECIALTY COMPANY, INC.

Manufacturers of Wire Goods and Stampings

20 South Union Avenue, Lansdowne, Penna.
Madison 6-0400

Fabrication and Finishing of Welded Wire Assemblies

Shelving	Finished in Chrome
Partitions	Electrozinc
Guards	Plastisol
Baskets	Electropolish
Automatic Wire Forms	Tinning
Dividers	Paints and Lacquers

We're happy to supply the Air Conditioning and Refrigeration Industry with

STEEL and ALUMINUM

ATHOS

STEEL SERVICE

CHEW AVE. & ROSEHILL STREET • PHILA. 20, PA. **GL 5-8900**

H. PERILSTEIN

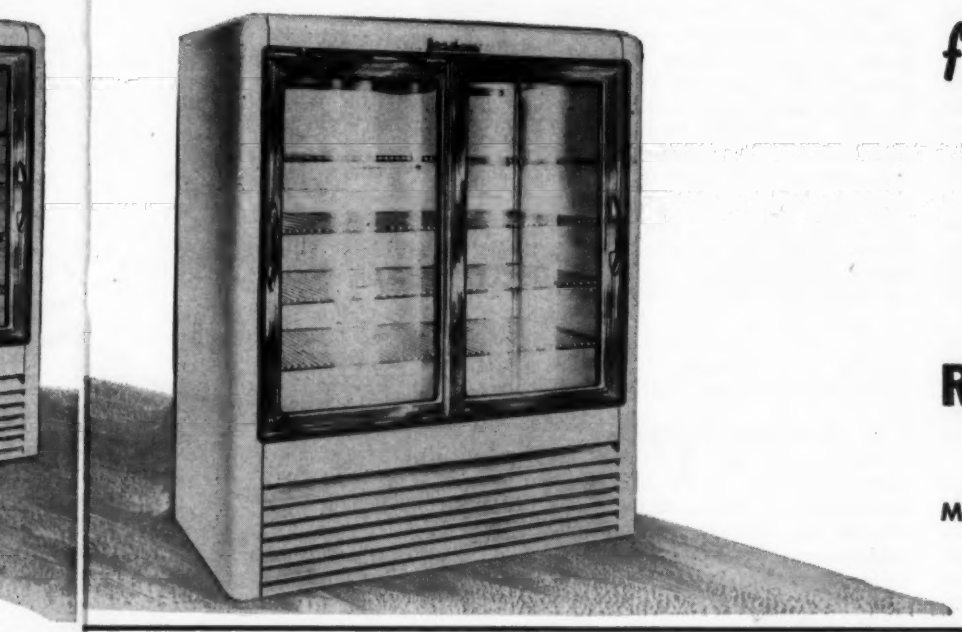
524 Lombard St. Philadelphia 47, Pa.

suppliers of

GLASS

extend their very sincere good wishes to

JORDON REFRIGERATOR CO.



from the New Home of

JORDON

the industry's most advanced line of REACHIN REFRIGERATORS and WALL CASES with exclusive JORD-O-MATIC Coil.

Models Shown 30JFC Reachin Refrigerator and 4½' Sliding Door Wall Case

Complete Plumbing and Heating System installed in the great new JORDON plant by

NELSON COMPANY

PIPE BENDING, FABRICATION, STEAMFITTERS, & PIPING CONTRACTORS

We invite your Inquiries on any of the above Items.

Power, Industrial and Process Piping
Fabricated and Installed

Electric and Acetylene Welding
Pipe Bends • Welding Headers
Van Stone Flanges

49TH & ASPEN STREETS PHILADELPHIA 39, PA.

A typical order being processed through Nelson Company's fabrication shops.

EFFECTIVE JULY 1ST

the Nelson Company moves to new quarters which will provide larger facilities for your immediate needs. New address:

AMOSLAND ROAD & TALBOT AVENUE, HOLMES, PA.
(At the Baltimore & Ohio Railroad)

XUM

ALMOST BIG ENOUGH TO STEP INTO is this two door Jordon freezer model C 42 for restaurants and institutions. Also in the line is a similar model that is a combination refrigerator-freezer, with separately controlled compartments.

Bonus-Dividend Plan Based on Quotas Helps Smooth Commercial Sales Curve

PHILADELPHIA — A unique bonus dividend plan inaugurated several months ago by the commercial division of Jordon Refrigerator Co. has won unanimous acceptance by the company's distributor's, reports E. A. Terhune, vice president in charge of the division.

The new plant is an innovation in commercial refrigeration merchandising, and has helped step up sales of Jordon commercial products considerably, Terhune states.

The bonus-dividend plan provides quarterly dividends to Jordon distributors, rather than annual.

Participation, according to Terhune, is in direct proportion to how each distributor meets his quota. Quotas have been set low. Each quota is determined individually for each distributor.

The bonus-dividend plan was established as part of the company's expansion program, built around expansion of the company into its new plant in the northeast section of the city.

Objective of this plant was not only to allow distributors to participate in Jordon's expansion, but to help level off seasonal drops in the sales of commercial refrigeration equipment.

During its initial experimental stage, Terhune said, the plan not only prevented a normal seasonal dip late last year, but the sales curve moved up several points during that period.

This is the way the plan works: at the beginning of each quarter the Jordon field representative and each distributor meet to set a quota for the ensuing quarter. If the distributor meets the quota, he receives a special dividend. If he surpasses it, his bonus-dividend increases proportionally.

'Live' TV Studio Planned For Chattanooga Show

CHATTANOOGA, Tenn.—Chattanooga's annual electric show will be held in the Warner Park Field House here from May 18 to 22, C. B. Osborne, show manager announced recently.

Osborne said that as a feature of the show, Chattanooga's new TV station, WDEF-TV, will move its studios to the field house and do all programs from there during the five days of the show. The station is also attempting to get nationally-known talent to appear at the show, Osborne added.

Jordon Considering Making a Household Refrigerator Line

PHILADELPHIA — Jordon Refrigerator Co. may market a standard line of refrigerators in 1955 if production plans and capacity permit, states Harry Fogel, executive vice president.

Also, Jordon expects to put its "Duplex" model refrigerator-freezer into smaller size cabinets for introduction in 1955, he said, to provide the consumer with a choice of sizes of this phenomenally successful dual-temperature unit which features the normal temperature refrigerator section at the top and the freezer section at the bottom.

These plans, already off the drawing boards, must wait for two things:

THE DETERMINING FACTORS

1. Catching up on backlogs of orders not only for upright home freezers and commercial refrigeration units, but for the "Duplex" models.

2. Whether Jordon production can keep up with demand during the balance of the year.

The Jordon executive revealed that sales of both its upright home freezers and chest-type freezer units were running about 12% ahead of the same time in 1953 and that he was extremely confident for the entire year.

The Duplex model, he said, has caught on so that their initial run of 2,000 units has already been sold and that backlogs of orders are now on a 90-day basis for this one unit.

In announcing plans to make the Duplex in three sizes, comparable to their upright home freezers (models J-12, 16, and 22), he said the objective is to accommodate the mass consumer market which already realizes that this is the answer to modern food problems in which the housewife uses both frozen foods and fresh foods which need refrigeration.

Jordon, he said, has developed its biggest market for freezers in the east, probably because of the heavier concentration of the population and because of the development of highly qualified freezer-food plans along the east coast.

CAN DOUBLE PRODUCTION

The company expects to double production on all of its products now, and with the efficiency of the new production operation, Jordon will be in a position to expand the number of models it is now manufacturing and marketing, it was stated.

To promote its consumer products, Jordon plans to begin a consumer advertising campaign built around *Good Housekeeping* magazine and later extended to other media. A trade campaign will precede it. For its commercial line, Jordon also has planned an extensive trade advertising campaign.

BROTHERS WHO MAKE UP THE TOP EXECUTIVE TEAM at Jordon Refrigerator Co. are Harry and Frank Fogel, executive vice president and president of the company. Their plans for some new and "different" products for the refrigeration and air conditioning industry sometimes had to wait for consumer thinking to "catch up" or for the addition of new production facilities, but the company is now in production with many of the items they developed in the course of their association.

Two Brothers See Ideas for New Products Made Possible with Added Plant Facilities

PHILADELPHIA — Frank and Harry Fogel, president and executive vice president of Jordon Refrigerator Co., respectively, in 1944 decided it was time they put their own ideas to work.

Trained in the commercial refrigeration industry since they were able to walk, the two brothers had ideas of their own not only to help the commercial refrigeration industry—but also to bring the home freezer industry into line with the modern trend toward frozen foods.

They opened offices and a plant on North Broad St. here, and began literally digging for business. The first year the two brothers did a $200,000 volume. Naturally encouraged by the fact that they could do such a volume from scratch, in 1945 they purchased a plant at 58th and Grays Ave. The building then boasted about 90,000 sq. ft. of manufacturing floor space.

Continuing expansion took place as the ideas of Frank and Harry began to bear fruit, and in 1948, a wing was added to that plant, increasing the space to 130,000 sq. ft.

As the demand for Jordon products grew, the need of greater production became more and more demanding. Since space was limited, the decision was made to mechanize and conveyorize the entire plant. The mass producing automotive industry was used as a model, but Jordon's own quality control system was continued.

The thinking on plans, expansion, new products, and new ideas has always been joint, but as the business grew, Harry took over sales and promotion, and Frank the production and plant operations.

Each developed his own departments, coordinating every move, until in 1951 sales shot up to $3,000,000. A year later it more than doubled to $7,000,000 and in 1953 sales totaled about $15,000,000.

The new building, incorporating modern, streamlined production, grew out of this continuing expansion. There just wasn't enough room in the building at 58th and Grays Ave., in southwest Philadelphia, to meet the growing demand for Jordon products, Frank and Harry explained.

In the midst of this growth, the brothers came up with the idea for a practical model upright home freezer. It was produced in small quantities, but as Harry put it, "Mrs. America wasn't ready for it yet."

A few years later, beautifying their old model, introducing their own exclusive features such as a door which realigns itself automatically when slammed shut, freezer plates for rapid freezing, rounded aluminum interior to eliminate snags and corners, the Fogels put the upright Jordon models again on the market.

"This time Mrs. America was ready for it because her consumption of frozen foods had grown to such an extent that she needed a freezer, and the upright freezer was the practical answer," say the Fogels.

For 1954, Jordon came up with another one of its dreams—really a redesign of a model the brothers had made up about eight years ago—the "Duplex," an appliance with normal temperature compartment on the top to allow for hour-to-hour usage, and the freezer portion on the bottom for storage and rapid freezing.

The Jordon story is unique for many reasons. First, it is made up of youth. Both principals are in their early or middle forties, and their executives are also young men who grew up with the company.

The company, because of the basic experience of its principals, makes the bulk of the components for its home freezers and commercial refrigeration. It works from the flat sheet steel, inspecting every step of production from the moment the steel arrives until the finished product leaves the plant tightly crated for shipment.

The Jordon laboratories, used for both research and testing, are the hub around which quality control revolves. If there is even a hint of a possible refrigerant leak, a piece of equipment is returned for further tests and reworking.

Congratulations to **JORDON**

on your growth in the Refrigeration Industry!

AUTOMATIC FIRE ALARM CO.
384-392 Bourse Bldg.
Philadelphia 6, Pa.

JOSEPH J. GLENNON CO.
2245 E. Ontario Street
Philadelphia 34, Pa.

HARRIS STEEL COMPANY
Kearny, New Jersey

MARX STATIONERY & PRINTING CO.
1023 Filbert Street
Philadelphia 7, Pa.

PIO-BOWMAN COMPANY
5648 Chew Avenue
Philadelphia 38, Pa.

QUINN BROTHERS
1712 North 2nd Street
Philadelphia, Pa.

UNITED CONTAINER CORP.
56th and Lancaster Avenue
Philadelphia, Pa.

We Take Pleasure In Announcing That On Jan. 1, 1954

PENNSYLVANIA BOX & LUMBER CO., PHILA., PA.

Acquired The

PACKAGING SERVICE CO., WYNCOTE, PA.

This latest step in our expansion program increases our service facilities for **INDUSTRIAL PACKAGE DESIGN and TESTING SERVICE.**

ENGINEERED SHIPPING CONTAINERS—including Wood Boxes, Crates & Shook; Cleated Containers; Watkins Crates; Wirebound Crates; Corrugated and Solid Fibre Boxes; Pallets and Skids.

For Containers & Pallets
Pennsylvania Box & Lumber Co.
2331 N. Bodine Street
Phila., Pa. GA. 6-7800

For Testing & Design
Packaging Service Co.
135 Greenwood Avenue
Wyncote, Pa. TURNER 3333

'Freon-13'--

(Concluded from Page 1, Col. 4)

sors in very low temperature applications. Early equipment for cooling to -150° F. used ethylene or ethane, both of which are flammable and explosive and required more expensive and space-consuming "open type" equipment.

'F-13' HAS CHEMICAL STABILITY

The excellent chemical stability of "Freon-13" and the fact it is non-corrosive with metals and other components of conventional refrigeration equipment makes its use in existing equipment relatively simple. Compressors designed for use of "Freon-12" dichlorodifluoromethane have been adapted to "Freon-13," with the "Freon-13" requiring approximately the same compressor displacement at -100° F. as is required for "Freon-12" at 0° F.

Although temperatures as low as -459° F.—just above absolute zero—have been achieved in low temperature (cryogenic) research laboratories, refrigeration systems utilizing "Freon-13" monochlorotrifluoromethane would fill the bulk of industry's current low-temperature requirements. Typical applications include metal toughening, chemical and pharmaceutical processing, aging of steel, shrink fitting of metals, and most types of low-temperature aircraft testing work.

Because it boils at -114.6° F., "Freon-13" is best adapted to use in cascade systems, in which a higher boiling refrigerant like "Freon-22" monochlorodifluoroethane is used as the condensing medium. Cascade systems actually consist of two separate refrigeration systems, the higher temperature one functioning only to extract heat from the second refrigerant after the latter has done its cooling work.

In cascade systems, the high pressure of saturated liquid "Freon-13" at room temperature during stand-by periods is eliminated by including an expansion chamber in the refrigeration system.

Although the compressor for use with "Freon-13" must ultimately be designed especially for it to achieve maximum efficiency, Du Pont engineers pointed out there are many fractional horsepower hermetic or semi-hermetic reciprocating compressors, originally designed for use with "Freon-22" or "Freon-12" dichlorodifluoromethane, which have been modified to give reliable, economical low-temperature cycles with "Freon-13."

Sizes from fractional horsepower installations up to 50 tons capacity are being produced with reciprocating compressors for temperatures of -70° to -125° F. Certain installations, by two-staging the "Freon-13" and cascading the high stage with "Freon-22," are producing temperatures lower than -150° F.

DRIER CARTRIDGES SHOULD BE INCLUDED IN CIRCUIT

Because "Freon-13" monochlorofluoromethane has about the same low solubility as "Freon-12" dichlorodifluoromethane, care must be exercised in dehydration of systems before the refrigerant is added. Refrigeration drier cartridges always should be included in the refrigerant circuit.

Like "Freon-22" monochlorodifluoroethane at temperatures below zero Fahrenheit, "Freon-13" is not miscible with oil and, therefore, requires oil separators at all temperatures. Conventional low-temperature refrigeration oils, dewaxed below -70° F., are used.

N.Y. Bank Will Finance Wiring with Appliances

NEW YORK CITY—A plan to permit appliance purchasers to finance the necessary wiring along with the appliance has been offered to selected appliance and air conditioning dealers by the National City Bank of New York.

Explaining the plan, J. Andrew Painter, vice president in charge of personal credit, said that the cost of the wiring cannot exceed 40% of the selling price of the appliance. Where both wiring and an appliance are financed together, a down payment amounting to 20% of the cost of both will be required.

For air conditioners a maximum of 24 months will be allowed for terms. For other appliances, up to 36 months will be permitted. The wiring and the appliance will be listed separately in the contract.

'Selling Personality' To Be Theme of Super Market Convention May 23-26

CLEVELAND—"How to Build a Distinctive Selling Personality" will be the theme of the 17th annual convention of the Super Market Institute to be held at the Public Auditorium here May 23 to 26.

A sell-out of space finds 423 manufacturers now listed for exhibits, which, according to Ray E. Dillon, SMI president, "will top any previous performance by food manufacturers, equipment manufacturers, and purveyors of special services to the mass distribution industry."

This will be the world's largest show of new store equipment, Dillon adds.

Convention theme in the three-day business session will be developed along the lines of building personality in stores, personnel, and advertising and promotion, explains Joseph P. Mott, general convention chairman.

Highest pre-convention registration in the past 10 years from both market operators and manufacturers has been announced recently by William Nigut, assistant executive director.

Detroit Plant Producing for International Metal Hose

DETROIT—International Metal Hose Co. has announced that it is now in production at its new plant here.

"With increased facilities and new machinery in the plant, we are able to produce in greater volume and to carry a service stock in all sizes," Lee K. Danner, vice president, declared.

International metal hose, he said, can now be supplied in three different types: Type B—lightweight; Type BB—medium weight; and Type C—heavy weight. By specifying cotton cord, copper, or asbestos packing, metal hose is suitable for conveying exhaust gases or liquids under pressure.

Flexible metal hose is now available in galvanized steel, brass, bronze, stainless steel, and aluminum.

To Help End Stale Bread

New Bake and Freeze Process May Revolutionize Industry

SYRACUSE, N. Y.—A new bake and freeze process which may revolutionize the baking industry is about to enter large scale commercial use, it was revealed.

Arnold Bakers, Inc., one of the east's largest quality bread manufacturers, is installing the nation's first major refrigeration plant for freezing and holding bread at its single large plant in Port Chester, N. Y., according to Carrier Corp. The system will be ready to go into action about the middle of April.

Mr. and Mrs. Dean Arnold, co-owners of the bakers, look forward to the time when the average housewife will take her bread from the freezer display case in her local market.

The new process which involves complete freezing of the bread shortly after baking will help put an end to stale bread on grocery shelves and halt wastage due to returns to the bakers, Arnold said. In addition, the freezing seals in the fresh baked flavor and arrests flavor changes, he pointed out.

Bakeries which concentrate on freezer bread will no longer be required to work nights, Sundays, and holidays to have fresh loaves ready each morning, it was noted. Also, large stocks can be accumulated and held against disaster or famine, or for special occasions.

The frozen bread, maintained in storage at 0°, is said to retain its freshness for more than a year. The Arnolds had already begun their experimentation with the bake-and-freeze process when they learned that the Admiral Byrd expedition found a loaf of bread, frozen upon abandonment of one of their camps, was completely fresh four years later.

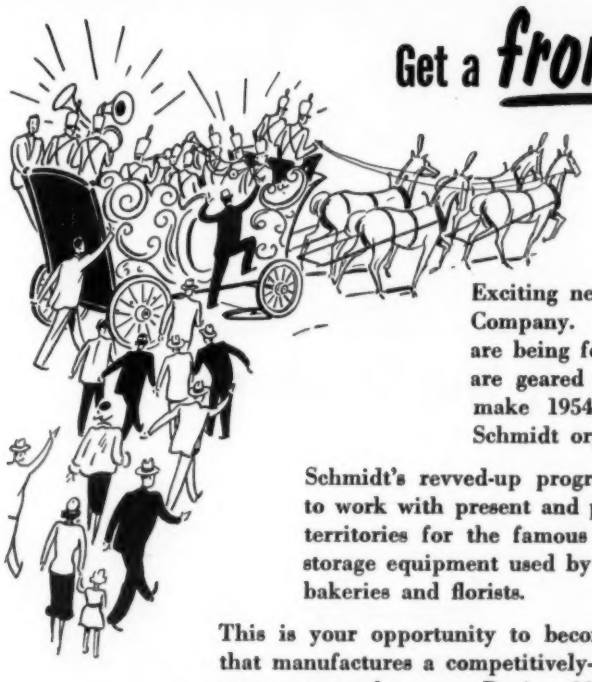
Rear Admiral Richard E. Byrd has subsequently become a vice president of Arnold's in charge of its frozen products division.

"The basic process consists of slow-baking, slicing, and wrapping the bread," it was explained. "Within two hours after it has been removed from the oven it is placed in a freezing room and quickly frozen at about -20° F. temperature. It is then packed in cartons and transferred to a holding room at 0° ready for shipment in refrigerated trucks."

Carrier engineers estimate that the refrigerating system will permit freezing of 1,000 lbs. of breadstuffs an hour.

Refrigerating equipment consists of three reciprocating compressors, three cold diffusers, and an evaporative condenser.

MANUFACTURER'S AGENTS



Get a *front seat* on the BANDWAGON

Exciting new things are happening at the C. Schmidt Company. More profitable merchandising methods are being formulated. Big money-making selling plans are geared to go into action. Everything is ready to make 1954 the biggest year in the history of the Schmidt organization.

Schmidt's revved-up program requires manufacturers' representatives to work with present and prospective Schmidt dealers. You'll develop territories for the famous THESCO line of refrigerated display and storage equipment used by food stores, hotels, restaurants, institutions, bakeries and florists.

This is your opportunity to become associated with an aggressive company that manufactures a competitively-priced line of equipment designed to make more money for you. During 1954, Schmidt equipment will not only be easier to sell . . . the demand will be greater . . . the profits bigger.

Ride high, wide and handsome to a real future with Schmidt. Write TODAY, telling us how your territory, present lines and sales history will fit into the Schmidt Profit Plan for manufacturers' representatives.

THE C. SCHMIDT COMPANY • 1712 JOHN STREET • CINCINNATI 14, OHIO

We invite you to...

LOOK INSIDE

it's the sturdy . . .

TEMPRITE

Drinking Water Cooler

SANITARY Stainless Steel Top is EXTRA DEEP. No splash from overflow—no spurt from nozzle.
WATER TEMPERATURE can be adjusted as desired.
FAN MOTOR assembly lifetime lubricated.
CABINET PANELS are heavy gauge sheet steel. Neutral grey baked finish.
POSITIVE ACTION FOOT PEDAL is standard, yet hand or dual control is available if desired.
COOLER and storage tank has all-welded seams.
MOISTURE PROOF, vermin proof, presettled cork insulation.
PATENTED INLET Water Tube increases efficiency, protects cooler against damage from freeze up.
ALL JOINTS and connections silver soldered.
HERMETICALLY SEALED compressor lubricated for life.

The Cooler with the DEEP Stainless Top!

Temprite Products Corporation
P. O. Box 72-A, East Maple Rd.
Birmingham, Michigan

Send me distributor franchise information, I am interested in handling Temprite Water Coolers.

Name_____

Address_____

City_____ State_____

Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing officer under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Ordnance Ammunition Center, Joliet, Ill.; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. **Ordnance District Offices do not have information on any other purchases.**

Invitations for Bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q" or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Officer in Charge, Navy Purchasing Office, Washington, D. C.			
Chilled water unit coolers-type B, with 115 Vac. motor and controller, sizes 41 thru 45—Note: Quantity indicated in total of all sizes.	99	7335-S	20 Apr 54
Combined cooling coil, type A sizes 45 and 46 D-F—Note: Quantity indicated is total of both sizes combined.	44	7335-S	20 Apr 54
Chilled water cooling coil, type A, sizes 42 thru 46 DW Note: Quantity indicated is total of all sizes combined. Above equipment per Specification MIL-A-2939-B dated 27 August 1953 with modifications as indicated in the invitation. AV. cooling coils and unit coolers shall be of a type which has been tested and passed qualification tests.	191	7335-S	20 Apr 54
Purchasing and Contracting Office, Building T-693, Yuma County Airport, Yuma, Arizona			
Air conditioning for AACS Building T-154, at Yuma County Airport, Yuma, Ariz.	Job	(02-606-54-19)	30 Mar 54
Air conditioning in Armament Building T-1231, at Yuma County Airport, Yuma, Ariz.	Job	(02-606-54-20)	2 Apr 54
Purchasing and Contracting Office, Fort Sill, Oklahoma			
Air conditioning service club No. 1, building No. 1721, Fort Sill, Oklahoma.	Job	(34-031-54-NA-4 B)	14 Apr 54
Department of the Army, Corps of Engineers, Office of the District Engineer, Washington District, First and Douglas Sts., N.W., Washington 25, D. C.			
At Camp Detrick, in Frederick County, Maryland. a. The construction of a two-story and partial basement laboratory building covering approximately 50,000 sq. ft. of ground area, with a concrete frame, masonry block exterior, cavity curtain walls, interior partitions, and steel, framed pitched roof, of 3" gypsum tile and composition shingles. Building to include laboratory equipment and to be air conditioned.		(49-080-54-45-(37)	18 May 54

U. S. ATOMIC ENERGY COMMISSION

Description	Quantity	Reference No.	App. Bid Date
Atomic Energy Commission, Oak Ridge, Tennessee			
Developing sink - stainless steel, with refrigeration and heating unit to be installed by successful bidder in Building No. 2714-F, Oak Ridge, Tennessee.	1 ea.	401-54-59C	29 Mar 54

CONTRACTS AWARDED THROUGH MARCH 22

Navy Purchasing Office, New York, N. Y.

Water Chillers.—16 ea., $32,192—Worthington Corp., 2 Park Ave., New York 16, New York.

Ships Parts Control Center, Mechanicsburg, Pennsylvania

Repair Parts for Refrigeration Equipment.—13,615, $73,314.—York Corp., 1616 Walnut St., Philadelphia 3, Pa.

Repair Parts for Temperature Regulators.—3,285, $45,507.—Robertshaw-Fulton Controls Co., Fulton-Sylphon Div., Knoxville, Tenn.

Purchasing & Contracting, Langley Air Force Base, Va.

Furnishing all plant, labor, equipment and materials and performing all operations for the installation of air conditioning in the OB and Gyn Clinic, Bldg. T-402, Langley Air Force Base, Va. Government's desired performance schedule—Work to start within 10 calendar days. Work to be complete within 60 calendar days. (Not to exceed 90 calendar days.)—Job, $11,460.—Poindexter Refrigeration Service, Warwick, Va.

Chicago Quartermaster Depot, 1819 W. Pershing Rd., Chicago 9, Illinois

Kitchen Range, Electric Domestic 54-68B.—414 ea., $34,738.—Frigidaire Sales Corp., 300 Taylor St., Dayton, Ohio.

Kitchen Range, Electric Domestic 54-68B.—1,871 ea., $170,107.—Welbilt Stove Co., Inc., Maspeth 78, L. I., New York.

The KEY to AIR CONDITIONING

by James J. LaSalvia

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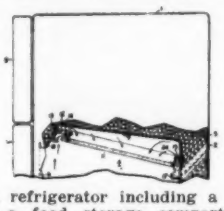
3-29-54

PATENTS

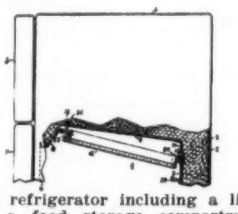
Week of December 22 (Continued)

2,663,160. EVAPORATOR. James F. Young, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Oct. 2, 1951, Serial No. 249,361. 10 Claims. (Cl. 62—103.)



1. A refrigerator including a liner defining a food storage compartment, an evaporator mounted at the top of said compartment for cooling said compartment, said evaporator comprising an extruded section formed into serpentine configuration including a plurality of parallel straight portions arranged in a plane and a plurality of loop portions connecting the ends of said straight portions, said extruded section including a tubular refrigerant-conducting portion and a fin extending upwardly from said tubular portion and extending longitudinally of said tubular portion, said evaporator being disposed with said straight portions extending parallel to the sides of said compartment and being inclined downwardly toward the rear of said compartment for facilitating drainage of water from said evaporator.

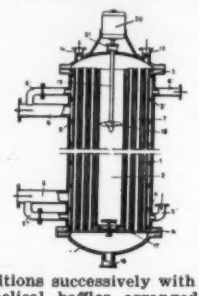
2,663,161. REFRIGERATION EVAPORATOR. Frank A. Schumacher, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Oct. 2, 1951, Serial No. 249,367. 4 Claims. (Cl. 62—103.)



1. A refrigerator including a liner defining a food storage compartment, an evaporator mounted at the top of said compartment for cooling said compartment, said evaporator comprising an extruded section formed into serpentine configuration including a plurality of parallel straight portions arranged in a plane and a plurality of forward and rear loop portions connecting the ends of said straight portions, said extruded section including a tubular refrigerant-conducting portion and a fin portion extending upwardly therefrom, said evaporator being disposed with said straight portions extending parallel to the sides of said compartment and being inclined downwardly toward the rear of said compartment for facilitating drainage of water from said evaporator, and a strip extending along the forward edge of said evaporator and secured to said forward loop portions, said strip being of saw-tooth configuration on its lower edge, each of the depending teeth being disposed adjacent a corresponding loop portion with the tip of each of said depending teeth being disposed substantially at the line of intersection of said tubular portion and said fin portion.

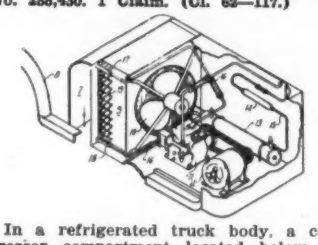
2,663,162. TUBULAR ICE-MACHINE. Georges Trepand, Paris, France, assignor to The Society Refroidisseur Trepand S. A. R. L., Paris, France, a corporation of France. Application Feb. 28, 1951, Serial No. 213,203. Claims priority, application France March 1, 1950. 5 Claims. (Cl. 62—106.)

1. Tubular ice-machine, provided with a cylindrical elongated casing comprising two water-tight cross partitions by means of which said casing is separated in three compartments, in the central compartment a large central tube and a plurality of freezing pipes, the lower and upper ends of which are fitted in the two partitions connecting thereby the two extreme compartments, a driving shaft, the axis of which coincides with the axis of the central tube, a screw fastened on said shaft to secure a continuous flow of water to be congealed in the closed circuit constituted by the central tube, the two extreme compartments and the freezing pipes, a piping for the refrigerating fluid, a piping for the thawing fluid, means to connect the annular space provided between the casing, the central tube and the two



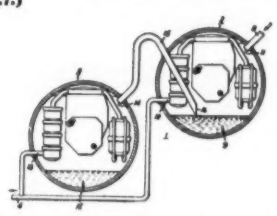
cross partitions successively with said two pipings, helical baffles arranged in said annular space, two watertight walls supplementing at each end the watertight partitions in said compartments, inlet and outlet ducts provided at both ends of each of said compartments, the inlet and outlet ducts of the median compartment connecting said compartment with the piping for the refrigerating fluid and the inlet and outlet ducts of the three compartments connecting said compartments with the piping for the thawing fluid.

2,663,163. REFRIGERATED TRUCK BODY. Raymond P. Mansmann, Pittsburgh, Pa. Application May 17, 1952, Serial No. 288,430. 1 Claim. (Cl. 62—117.)



In a refrigerated truck body, a compressor compartment located below the floor of the truck at the front thereof and forming a part of the truck body, said compartment having side doors on the outside of the body and having an open exhaust passage coextensive with the width of the compartment extending downward below the truck body at the rear of the compartment, a condenser disposed adjacent said exhaust passage and a blower and compressor with accessories in spaced relation in front of said condenser to maintain an unobstructed flow of air from the door opening of said compartment through said condenser to the exhaust passage of the compartment.

2,663,164. PARALLEL COMPRESSOR ARRANGEMENT IN REFRIGERATING SYSTEM. Lowell M. Kurtz, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Nov. 2, 1951, Serial No. 254,540. 2 Claims. (Cl. 62—117.7.)



1. In a refrigerating system including an exhaust line and a suction line, the combination of a pair of compressors, each of said compressors having an oil sump, said compressors being commonly connected to said exhaust line, only one of said compressors being connected to said suction line and receiving initially all of the oil and vaporized refrigerant from said suction line and a single tube connecting said pair of compressors, one end of said tube extending into said one compressor and to the normal oil level in the sump thereof, the other end of said tube being connected to the other compressor above the sump thereof, said tube being effective for both equalizing vapor pressures in said compressors and transferring oil exceeding the normal level in the sump of said one compressor to said other compressor for collection in the sump thereof.

(To Be Continued)

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Pictures published on this page are from the recent ARI Educational Conference on Commercial Refrigeration and Air Conditioning, held in Long Beach, Calif. These pictures and the ones published in a previous issue are intended to be merely representative of the kind of exhibits that will be found at these conferences, which are open to all in the industry. Next conference is scheduled for November in Minneapolis-St. Paul.

A LOOK AT THE 'INSIDES' OF A LEHIGH compressor was afforded in the Lehigh Mfg. Co. exhibit. Cham Coombs (left) goes over some points in the construction with Joe Batteiger (right) of the J. H. Batteiger Co., Los Angeles. In the background Erick Ziessmann of the Batteiger Co. confers with Clyde Webb.

HOW COOLING TOWER PARTS EXPOSED TO WATER ARE PROTECTED is explained by H. I. Schmidt of Halstead & Mitchell Co. to Wayne White, Hussmann Refrigerator Co., Albany, Calif. Demonstration of design and construction through the use of products set up for special demonstration purposes is a feature of the Educational Conferences.

ELECTRICALLY HEATED "DRY DOOR" ON the Barr Mfg. Co. "Ser-Vue" reach-in commercial refrigerator is demonstrated by Louis F. Barr. Electrical heating element, which has flexible connection to permit doors to swing out, is designed to prevent accumulation of moisture and to keep door from sweating, and to promote clear vision at all times.

HOW VARIOUS CONDITIONS IN THE ELECTRICAL CIRCUITS, AND CHANGES IN POWER CHARACTERISTICS, will affect a refrigeration system's operation, is graphically demonstrated in this display developed by Copeland Refrigeration Corp. John Spence (left) of Hussmann Refrigerator Co., St. Louis, discusses operation of the demonstrator with J. L. Zandt of Copeland.

"OKAY FOR ANY HOT LIQUID LINE" might be the title of this demonstration of Virginia Smelting Co.'s "Presstite" insulation tape, which R. H. Israel is conducting for Mrs. N. A. Berkey, Jr. of Birmingham, Ala. Thermometer attached to the line shows effectiveness of the tape.

EFFECTIVE WAY TO SHOW OPERATING PARTS of a room air conditioner is to enclose the refrigerating system section in glass, as Curtis Mfg. Co. did. Harry Morrison (right) of Curtis demonstrates some of the system's operating characteristics to H. L. Robinson of Los Angeles and Wyatt Brown of San Francisco. Raised cover at right is exhausting port, which permits exhausting of air from the room as desired by user.

Ranco's new 3° differential control means *plus business* for you! It's just the control you need for modernizing old-fashioned window air conditioners not equipped with controls. In residential and commercial installations—bedrooms and offices—this new control prevents over-cooling . . . keeps the temperature *just right* all the time. In humid areas, it holds down humidity while maintaining a comfortable temperature. There are many out-moded conditioners right in your own city—cash in on this extra modernization business.

Whatever your refrigeration control problem—see your Ranco wholesaler. He has a Ranco control for more than 4,000 replacements . . . far more than any other manufacturer!

A13-109 (without "off" position)

A13-110 (with "off" position)

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WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Atlanta Agent to Deal In Commercial Lines

ATLANTA—A new firm, John W. Parker & Associates, has been established here as a manufacturers' representative serving the southeastern states, it was announced recently by John W. Parker, Jr., principal in the agency.

Located in the Bona Allen building, the company is representing Jamison Cold Storage Door Co., Hagerstown, Md.; Market Forge Co., Everett, Mass., manufacturer of steel refrigerator shelving and mortuary equipment; and Philadelphia Tramrail Co., manufacturer of meat tracking and monorail systems.

For the past 18 years, Parker was associated with Leo S. Bosarge Co., Atlanta refrigeration supply jobber, as sales engineer, general manager, second vice president, and director.

W. E. Sullivan and Gladys McCoy, sales engineer and secretary, respectively, of the new firm, were also formerly connected with the Bosarge company.

Sullivan has had varied experience in the refrigeration jobbing field and is a graduate of North Georgia college, Dahlonega, Ga. Miss McCoy was formerly treasurer of Bosarge.

Smith Gets New Post as RCA Estate Sales V.P.

HAMILTON, Ohio—Appointment of Inwood Smith to the newly-created position of vice president in charge of sales, RCA Estate Appliance Corp., has been announced by Cecil M. Dunn, president.

Inwood Smith

RCA Estate is a subsidiary of the Radio Corp. of America.

"Creation of the new post in our merchandising department," Dunn said, "is designed to fulfill needs for long-range planning of production and sales for the company's line of electric and gas ranges.

"RCA Estate, at its headquarters here, has completed the first phase of a modernization program. The plant has been completely remodeled and equipment and other facilities added, which approximately triple the productive capacity.

"RCA Estate is also introducing a completely-restyled line of kitchen ranges with popular price brackets."

Smith brings to his new post 17 years of field sales and managerial experience in appliance marketing.

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POSITIONS WANTED

A-1 COMMERCIAL refrigeration, air conditioning installation, service and overhaul mechanic. Eighteen years' schooling and experience installing, rebuilding and refinishing machines, fixtures, electric motors and food machines. Neat, efficient installations. Fast, accurate trouble shooting. First class refinisher. Good health, 39, sober, dependable. Relocate. Available May 1. Box 1351, Ft. Worth, Texas.

WE WANT to come south: Virginia, Louisiana, Florida, what have you? Married man, 34 years old with family. Salesman with working knowledge of refrigeration and air conditioning. Experienced in supermarket and air conditioning layout. Will produce better than average results. In return expect better than average compensation. Will consider position as sales representative for manufacturer. All inquiries answered immediately. BOX 4535, Air Conditioning & Refrigeration News.

WELL DIVERSIFIED educational and applied background covering the installation, servicing, sales, and executive work on commercial application of: Refrigeration, heating, plumbing, and electricity. Radio and electronic studies completed as part of college curriculum but not applied actively. Will furnish excellent and complete resume and photo. Age 36, married. Seek permanent position in warm climate. Salary is secondary to pleasant association. Some traveling acceptable. BOX 4536, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ASSISTANT TO manager. National manufacturer of air conditioning, heating, ventilating, and heat transfer equipment has excellent opening for graduate engineer, 30 to 35 years of age. Man selected will serve as assistant to manager of expanding unit air conditioner sales department. Unusual opportunity to advance with growing concern. Submit resume to: THE TRANE COMPANY, La Crosse, Wisconsin; Attn: D. B. Reed.

EQUIPMENT FOR SALE

ATTENTION SERVICEMEN: Send for our refrigeration parts and supplies catalog. Save up to 50% on many items. Relays, V belts, T.X. valves, fittings, controls, driers. New—guaranteed merchandise. WALTER W. STARR REFRIGERATION, 2833 Lincoln Avenue, Chicago 13, Illinois.

BRASS FITTINGS surplus. Write for prices. 6-foot extension cords, with male plug on one end, 20¢ ea. Rubber covered wire, SJ-2 wire #18 250′ spool $8.50. #16-wire 250′ spool $9.50. Copper tubing at below wholesale. Call or write J. WILLIAMS, 65 E. Cermak Road, Chicago, Illinois.

HERMETIC UNITS remanufactured by Michigan's leading wholesale hermetic rebuilder. All standard makes. Write for price list and shipping instructions on your letterhead. BRIGHTON HERMETIC SERVICE, 3906 Joy Rd., Detroit 6, Michigan.

75 Lau Blowers less motors, new in original crates. All sizes. Cheap. COOL-AIRE, 1940 So. High St., Columbus 7, Ohio.

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3-29-54

NEMA Refrigerator Sales Total 3,490,552 In '53; December Sales Reach 197,102

Summary for December and Year, 1953

Complete Electric Household Refrigerators Only—Sales by Sizes—Units

DECEMBER (17 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.....	....	....	....	....
2. 4 cu. ft.	956	....	2	958
3. 5 cu. ft.	11	....	6	17
4. 6 cu. ft.	11,417	2	714	12,133
5. 7 cu. ft.	23,049	226	1,331	24,606
6. 8 cu. ft.	26,885	31	5,196	32,112
7. 9 cu. ft.	30,394	51	3,311	33,756
8. 10 cu. ft.	26,959	283	1,193	28,435
9. 11 cu. ft.	40,793	119	1,643	42,555
10. 12, 13 cu. ft. and up..	21,267	53	1,210	22,530
11. Total	**181,731**	**765**	**14,606**	**197,102**
Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**21,482**	**14**	**1,164**	**22,660**

YEAR, 1953 (17-18 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.....	....	....	....	....
2. 4 cu. ft.	19,855	5	1,603	21,463
3. 5 cu. ft.	987	247	210	1,444
4. 6 cu. ft.	123,979	141	15,405	139,525
5. 7 cu. ft.	485,123	24,646	47,451	557,220
6. 8 cu. ft.	457,355	17,661	50,356	525,372
7. 9 cu. ft.	810,550	39,884	62,573	913,007
8. 10 cu. ft.	424,333	28,858	19,141	472,332
9. 11 cu. ft.	637,418	11,518	25,313	674,249
10. 12, 13 cu. ft. and up..	177,530	2,528	5,882	185,940
11. Total	**3,137,130**	**125,488**	**227,934**	**3,490,552**
Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**339,521**	**2,042**	**15,461**	**357,024**

Participating companies: Admiral Corp.; Appliance & Electronics Div., Avco Mfg. Co. (Crosley and Bendix Divs.); Coolerator Co., a Div. of International Tel. & Tel. Corp.; Deepfreeze Appliance Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div., Nash-Kelvinator Corp.; A. J. Lindemann & Hoverson Co.; Norge Div., Borg-Warner Corp.; Philco Corp., Major Appliance Div.; Quicfrez, Inc.; Seeger Refrigerator Co.; Servel, Inc. (In 3-1-53); Westinghouse Electric Corp.

Westinghouse--

(Concluded from Page 1, Col. 5)

Production capacity is approximately 4,000 units a day.

Construction of the new plant was begun in September, 1952. It was prompted largely by the electric appliance division tripling its sales volume in the previous 10-year period, Ashbaugh said.

In addition to this sales increase, the division has added 18 new products to its lines of major appliances, portable appliances, and refrigeration specialties since the end of World War II.

"In addition to constructing this plant," Ashbaugh declared, "we have also begun expansions of our plants in Mansfield and in Springfield, Mass. When these expansions are completed, we will have approximately double the production capacity for major appliances that we had during 1953. We will have substantially increased our production capacity for portable appliances and refrigeration specialties."

While the new plant is not the largest owned by Westinghouse, it is the largest the corporation has ever built. It is located on a 315-acre site just outside the city in Franklin township.

Extending almost half-a-mile in length, the factory building contains four manufacturing aisles, each 200 ft. wide and approximately 1,500 ft. long. These aisles lead in a straight-line production pattern to the warehouse area which has a storage capacity of 100,000 major appliances.

Among the outstanding features of the plant is what is considered to be one of the largest industrial stages in the country. The stage and assembly hall are located on the second floor of the office building. Adjoining them is a large display room.

The stage, which is 160 ft. long, has a front opening of 48 by 22 ft. and has facilities for 32 backdrops. The assembly hall seating capacity is 800. One thousand can be seated by use of the adjoining display room.

It's future use will probably be for training schools for appliance salesmen, dramatic presentations of new lines of products, or presentations to the general public of such things as cooking schools, Ashbaugh said.

I-H Signs New Hawaiian Refrigeration Distributor

HONOLULU, T. H. — Electrical Distributors, Ltd., a 10-year-old Island firm, has taken on the distribution of International Harvester refrigeration products for the territory.

In addition to its wholesale operation, Electrical Distributors operates furniture and retail outlets in Honolulu. The company has traveling representatives covering all of the major islands in the group. F. K. Grider is president.

Ranney Refrigerator Co. Elects Rees President

GREENVILLE, Mich.—Ranney Refrigerator Co. here has announced the election of Gregory L. Rees as president and chief executive officer.

G. L. Rees

Rees, who was previously president of Coolerator Co., Duluth, will take over the Ranney position April 1. This means a return to Greenville for Rees, who was manager of Gibson sales before joining Coolerator.

Ranney specializes in the manufacture of refrigerated products for other manufacturers, private brand outlets, and independent distributors and dealers, the announcement stated.

The company plans to expand operations under the direction of Rees, who has wide experience in the trade. He has been in the major appliance industry since 1935.

Bernbeck Files Name

BUFFALO — A business name has been filed in the Erie County clerk's office for the Bernbeck Electric, 799 Genesee St., Buffalo, by Gerald J. Bernbeck.

New Marley Plant--

(Concluded from Page 1, Col. 2)

Occupying 10 acres, the plant provides 77,000 sq. ft. of production space, and is equipped with the most modern machinery for rapid fabrication of packaged water cooling towers, according to the company.

"Here steel Aquatowers will be manufactured in a complete range of standard sizes to meet every cooling requirement in the 2 to 60-ton range," Marley said.

In addition, new all steel counterflow towers will be fabricated for large capacity water cooling service. Another product of this facility is the company's line of "DriCooler" air-cooled heat exchangers.

Immediately adjacent to the new plant Marley has optioned 4½ acres in anticipation of still further expansion. The new plant supplements Marley's other manufacturing facilities in Kansas City, Kans., Stockton, Calif., and Houston, Texas.

Ohio Grant Store Installs 50-Ton Heat Pump

NEWARK, Ohio — One of the largest heat pump installations in Ohio recently went into operation in the W. T. Grant Co.'s store here.

Ralph J. Kramer and Associates of Columbus designed the system which uses well water for year-round air conditioning.

A Trane "CenTraVac," a centrifugal refrigeration compressor, is used for both heating and cooling. During the most severe heating conditions, 84% of the building's heating requirements are supplied by the well water and the remaining 16% by electrical energy, Kramer said. Total cooling capacity of the system is approximately 50 tons.

Three Trane "Climate Changers" condition the air for the three-floor building and convectors provide supplemental winter heating when necessary.

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If you have product knowledge and sound sales ideas that will help us to promote Home Freezers in volume, there is an attractive and challenging position available with Maytag in the Newton, Iowa office. This position is at a high level of authority and responsibility.

Write me in absolute confidence and tell a complete story of your background and experience. I'll appreciate a late photograph, if available.

Verne R. Martin, General Sales Manager
THE MAYTAG COMPANY, Newton, Iowa

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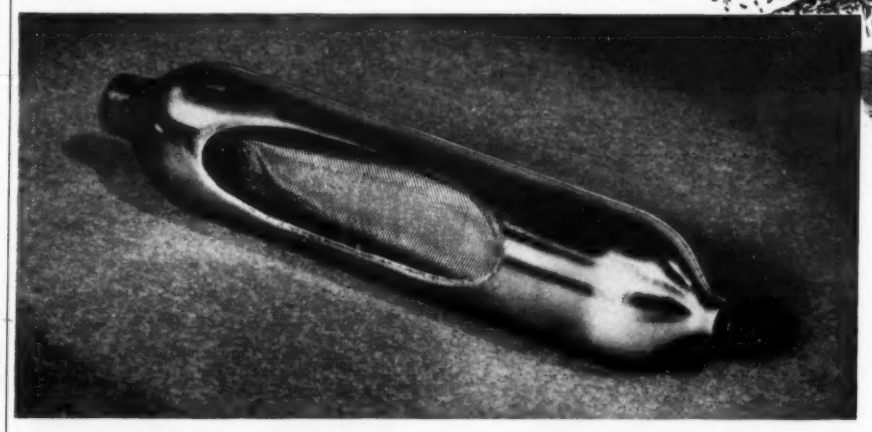

● If you produce a multi-piece refrigeration part—tubular in shape—here's a money-saving tip for you:

In just one speedy, simple operation, the end of a piece of plain copper or aluminum tubing can be completely or partially closed, necked, or otherwise fabricated *to your specifications* and in line with refrigeration industry standards!

This means that many costly production operations such as deep drawing, stamping, swaging—soldering, brazing, and similar fabricating and joining operations can be crossed off your list—or at least greatly simplified . . . as can the extra part and assembly required to close the end the old way.

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Here are just two of the many ways spinning can help you:

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2) *It adds efficiency:* There are no seams or joints; consequently, no leaks.

If you want help in developing a Spun End product, just call on Wolverine's Field Engineering Service. They have the answers you need at their finger tips. And if you want more information, write for a copy of Wolverine's Spun End Book. It's yours upon request! WOLVERINE TUBE DIVISION of Calumet & Hecla, Inc., 1413 Central Ave., Detroit 9, Michigan.

*A PATENTED PROCESS RE. 22465.

Wolverine Trufin and the Wolverine Spun End Process available in Canada through the Unifin Tube Co., London, Ontario.

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